THE ROLE OF FAMILY IN ADOLESCENT SMOKING

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The role of family in adolescent smoking

Social influences and implications for social policy

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Abstract

Smoking in childhood and adolescence is associated with a range of health issues, as is the exposure of young people to the second hand smoke of their parents and other family members. The initiation of smoking in adolescence is also associated with an increased risk of smoking in adulthood and all the subsequent health problems that are attached to this. Whilst smoking rates in adolescent have fallen in recent years there remains a significant number of adolescent who initiate smoking every year, and this risk is higher in certain groups such as those from areas of low socio-economic status. Under-age adolescents also continue to be able to obtain cigarettes despite recent changes in legislation and availability. Social influence has been identified as a major causal factor of initiation of adolescent smoking. This can take place in a number of settings, including the home, at school and in the community. Whilst the evidence for the relative effects of these sources of influence is mixed there is an overall lack of research in the UK on familial influences and factors. A survey of 100 adolescents was conducted for the current study at a local college and included items on smoking behaviour, family structure and several other factors. No overall significant effects of parental attitudes were found. However in light of the existing literature recommendations are made to further research family and home influences and to develop anti-smoking health education strategies which more fully take these factors into account.

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Dedication

I would like to dedicate this dissertation to my loving mother. Her support, prayers and constant love always sustained and supported me throughout my life.

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Chapter 1 - Overview of smoking in the UK

Cigarette smoking and the construction of a cigarette

The practice through which tobacco in cigarettes, cigars and pipes is burned and the smoke produced is inhaled is called smoking. Cigarettes are engineered to deliver a fixed amount of nicotine to smokers. Different brands have different amounts of fillers, which include leaves, stems and other extracts, along with the further addition of water, flavours and additives. The higher the filler content the less dense the cigarette and the lower the tar delivery.

The paper in which the cigarette is wrapped is further used to manipulate the delivery of the tobacco. The more porous the paper the more air can enter into the cigarette, which dilutes the smoke and in turn reduces the quantity of tar and nicotine inhaled by the smoker. Fibre acetate is used to make filters, which catch certain amounts of tar and particles when the smoke is inhaled. The purpose of the filters is also to cool the smoke and to make it easier to inhale.

Humectants or moisturizers are also added to prolong shelf life, while sugars are added for easier inhalation and to make the smoke seem milder. Tobacco companies are known to have added different flavours like vanilla, chocolate, candy and menthol to attract new consumers, especially young people (Lewis & Wackowski, 2006). Nearly 4000 dangerous chemicals are found in tobacco and approximately 5000 in tobacco smoke (Siem, 2000).

History of tobacco in the UK

The introduction of smoking to Britain started in the 16th century following voyages by Drakes and Hawkins (Borio, 1998). According to Corti (1931), smoking habits were further developed during the reign of Elizabeth I of England and spread to many parts of the country. King James I of England, a descendant of Elizabeth, opposed smoking and published a book, Counterblast to Tobacco, in 1604. He also increased import taxes on tobacco from 2 pence/lb to 10pence/lb (Borio, 1998). However, despite this the popularity of tobacco continued to increase.

Borio (1998) also highlights that tobacco sales from the colony of Jamestown in Barbados acted as a promoter for the entire English colonies in America. An estimated 500,000lbs of Virginia tobacco was imported to London every year in the late 1620s. Tobacco remained the most profitable trade for the UK during next half of the 16th century (Royal College of Physicians, 2000). After the restoration of the monarchy in 1660, a French snuff captivating habit developed when Charles I of England returned to Britain from exile in Paris, after which the practice of pipe smoking was gradually replaced by snuff (Borio, 2001).

According to the Royal College of Physicians (2000), tobacco use in the form of cigarettes was first introduced by returning soldiers from the Crimean War (1853-1856). In 1885, Philip Morris began production of handmade cigarettes whilst William Hedges and Richard Benson opened their own tobacco shop, a business which became very profitable (Corti, 1931). From 1895 onwards, the manufacture of cigarettes was so high

that until 1990 cigarette sales alone were higher than sales of all other forms of tobacco product combined. The popularity of cigarettes during the twentieth century could perhaps in part be attributed to the growth of advertising throughout this time. It is certainly the case that cigarette advertisements often employed the use of celebrities and sports stars who could be described as inspirational figures, particularly for young people. One example, as shown in Figure 1.1, featured the well-known footballer Stanley Matthews in 1952 describing Craven 'A' as a cigarette which is smooth and clean while calling it the 'cigarette for me'.

Figure 1.1, Advertisement utilizing a celebrity

In the UK cigarette smoking became a hallmark of the Suffragette movement (Vierola H, 1998), as women challenged the social convention that smoking was purely a male pursuit. It could be argued however that this was partly due to manipulations of tobacco

companies, who released a series of advertisements specifically targeted towards women as shown in the figure below.

Figure 1.2. Camel cigarettes poster circa 1920s

Smoking in the 20th and 21st century

In England, approximately 200,000 adolescents and teenagers start smoking regularly every year (Department of Health, 2010). A series of annual smoking surveys among

11-15 year old schoolchildren have been carried out in the UK since 1982 on behalf of the NHS Information Centre and conducted by the National Centre for Social Research and the National Foundation for Educational Research, with the most recent results being published in the Smoking, Drinking and Drug Use Report (Fuller, 2009) .The number of children in 2009 who had reported that they never tried smoking was 71%, which was the highest recorded percentage since regular surveying began in 1982 (Fuller, 2009). There has been a long-term decline in the percentage of people who reported smoking at all (i.e. any experience of smoking) between 11 to 15 years old during this time period (Fuller, 2008). Overall there was a 20 % decrease in anyone who ever reported smoking, with a rate of 53% recorded in 1982 and a rate of 33% reported by 2007 (Fuller 2008). A similar Department of Health survey conducted in 2000 on the percentage of regular smokers (defined as those who smoke at least one cigarette a week) in 11 – 15 year olds, demonstrated a similar decline of 10%,dropping from 21% in 1998 to 11% in 2000.These figures remained stable for several years before dropping to 6% in 2007(Fuller, 2008).The fact that several different surveys have noted a similar pattern of change suggests that there has been a genuine reduction in smoking rates, although of course as shall be discussed at a later point there are always issues of accuracy with surveys that are based on self-reporting. These overall reductions in smoking rates could be the result of several factors, including recent changes to smoking legislation, national and local health campaigns, prohibition of tobacco advertising, and increased taxation. Whilst the numbers of possibilities make it difficult to establish causal relationships, the changing rates of cigarette use in adolescents do

at least demonstrate that change is possible, reinforcing the need to more fully explore behavior change strategies.

One notable feature of the reported figures is that since the mid-1980s girls have been more likely than boys to be regular smokers, although boys smoke more cigarettes. In the 2000 Department of Health Survey, boys who were regular smokers reported smoking 50 cigarettes in the past week compared with girls, who reported 44 cigarettes in the past week (Department of Health, 2002). According to further surveys conducted by the Department of Health and published in the Smoking, Drinking and Drug Use Report, prevalence of smoking among 15 – 18 year olds is higher as compared to all other age groups. In 1982, the recorded smoking prevalence for this group was 25%, by 2000 it dropped to 23% followed by a further decline to 15% in 2007, after a short period of stability around 20% (Fuller 2008).

Data from age groups 16-19 and 20-24 were reported separately in the General Household Survey, while the Health Survey for England reported both age groups as a whole, making it difficult to make direct comparisons (Robinson & Lader). During the time, it was evident that smoking rates among 20-24 year olds was persistently higher than amongst 16-24 year olds. These variances among different age groups and surveys may be a product of sampling and regional differences in smoking prevalence, as will be further discussed at a later point.

More recent prevalent data from a national sample was collected on a monthly basis as part of the Smoking Toolkit Study. This English national household survey, conducted two surveys on a monthly basis that adopted a two-stage sample procedure, in which

data was collected twice from the same people. This resulted in a sample size of nearly 1700 respondents each month. This survey can be equally weighted to the 2001 census (West, 2006). The collection of data began during November 2006. The smoking prevalence rate of 16-19 year olds was found to be between 30% and 40%. However, the reported rates for 16-24 year olds were found to be slightly higher than as reported in the General Household Survey and the Health Survey for England. These differences in the surveys may be attributable to the different sample strategies used in the surveys. The General Household Survey and the Health Survey for England are both national surveys, which include smokers and non-smokers, whereas the Smoking Toolkit Study focused solely on current smokers.

The differences could also in part be the result of the wording of the questions, as the Toolkit study specifically asked directly whether respondents smoke cigarettes every day. In contrast, the Health Survey for England and General Household Survey asks if the participants smoke cigarettes at all nowadays, which could have excluded those smokers who consider themselves light or social smokers, or who are in the process of quitting.

Smoking by gender

In adults, males have the highest rate of smoking as compared to women (Robinson & Lader 2008, Craig & Mindell 2008a). However as commented, the situation is different amongst adolescents; with girls generally found to have the highest rate of smoking as compared to boys. A study by Conner et al (2005) reported that among 15 and 16 year

old females, they had the highest percentage of smoking with over twenty-one cigarettes a week.

In 2007, in the UK, 5% of 11-15 year old boys reported themselves to be regular smokers, compared to 8% of 11-15 year old girls. At the age of 15, these figures rise to 12% and 19% for males and females respectively (Fuller, 2008). According to the General Household Survey (GHS, 2007), the regular smoking prevalence rate for 16-19 year old men and women was 22% and 20% respectively and for men and women aged 20-24 years old was 32% and 30% respectively (Robinson &Lader 2008).

According to Graham (2006b), those women who were under 21 years and had a baby were more likely to be an adult smoker than those females who had no babies. Similarly, for those who had a child before the age of 20, the odds ratios of smoking were considerably higher. Different situations and domestic problems may explain some of the gender differences found in smoking rates (Graham et al 2006a, b). It has been argued that all measured aspects of being disadvantaged such as educational disadvantages, poor adult socioeconomic circumstances (SEC), poor childhood SEC, and gender specific factors including lone motherhood and young motherhood increases women's risks of smoking before pregnancy (Graham, 2006b).

One alternative possibility, however, is that the factors listed above such as socio-economic stress are causal agents for both smoking and becoming a parent at a younger age, meaning that the relationship between these variables is one of association rather than causation.

Smoking trajectories

According to the Smoking Drinking and Drug use Survey (2007), there is a clear increase in the prevalence of smoking with age, with an increase in the prevalence of smoking from ages 11 – 16, as young people initiate smoking for the first time. The increase in the percentage of regular smoking was found to be particularly marked between the ages of 13 to 14, rising from less than 4% to 15%.

The MRC Twenty-07 Study, a longitudinal project conducted from 1987 over 20 years in Scotland, demonstrated that the percentage of those smokers who smoked 10 cigarettes a day increases from less than 5% at age15, to 20% at age 18 years, with further increases at 25 years (Sweeting & West 2001). The study also noted the predictive effect of adolescent smoking on smoking in adulthood, with only 2% of those participants who started at age 15 having given up by the age of 18, whilst 6% of those who had started smoking at the age of 18 had stopped at age 23 (Sweeting & West 2001).

The General Household Survey includes retrospective items about smoking initiation. The majority of respondents included in the survey aged 16 and above reported that their smoking initiation occurred before the age of 18. Overall 36% of women and 41% men reported that they smoked regularly before the age of 16, whereas 26% of men and 28% of women reported smoking initiation between ages 16 and 17.There were differences in smoking uptake with regard to socioeconomic status. Participants from skilled and administrative occupations reported a lower rate of regular smoking before

the age of 16, as compared to the manual and low skilled group at 30% and 40% respectively (Robinson & Lader, 2008). Hence, from the above discussion it is clear that smoking is a multistage process occurring in a wide range of ages, which often begins in adolescence. The fact that adolescent smoking increases with age could be directly or indirectly associated with a wide range of risk factors including: peer group smoking, parental and sibling smoking, marketing and, in the past, advertisements on television, film and other. It will be interesting to see if banning cigarette advertisements in the UK will have any major effect on the smoking initiation behaviours of newer generations of young adults. It is important to understand the various social, behavioral and psychological influences, which initiate adolescent smoking. This in turn could provide richer information for intervention timing as well as intervention type for different sub-populations of adolescents. However, as will be discussed in later chapters it would be challenging to separate the individual effects of the diverse number of potential causal factors.

Geographical region and smoking

The highest adult smoking prevalence rate in the UK was recorded in Scotland at 25% in 2009, followed by the second and third highest smoking rates of 23% and 21% in Wales and England (Office for National Statistics, 2011). However, adolescent smoking rates as shown in Figure 1.3 can be further broken down in England as follows. North West England and Yorkshire and Humber have smoking prevalence rates for women at approximately 23%, while South West, East of England and the East Midlands have the lowest male and female smoking rates (below 20%). The rates of male smokers were nearly the same in the South East and the South West. The male smoking prevalence

rate in London is high as compared to other regions. Overall, there is little variance among female smoking rates across England; however, differences in male smoking rates are more notable. These results should be taken into consideration when evaluating the gender differences between smoking rates found in more regional or locally based surveys.

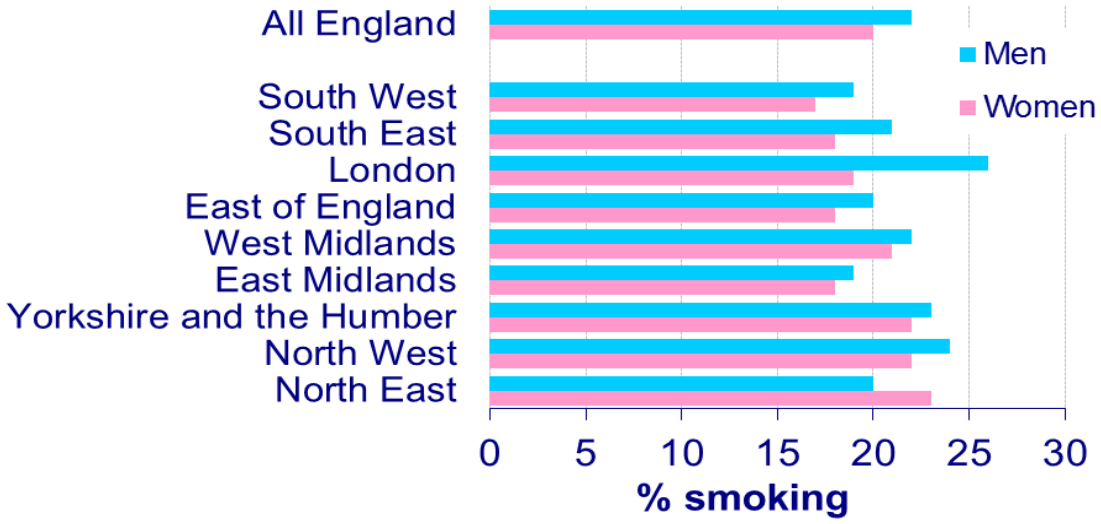

Figure 1.3. Prevalence of cigarette smoking by sex, England and Government Office Regions, 2009

The differences in smoking rates within various geographical regions in England may be because of differences in life style, ethnic groups, implementation of legislation and socio-economic status within the same culture context. For example, one of the reasons behind higher smoking rates in North East England as compared to South East England could be poverty. According to the Office of National Statistics during 2007-2010, 24%

of people (approximately 6.2 million) in North East were living in households with incomes below the poverty threshold. Similarly, between the same period, the South East had wealthier households with greater financial and pension wealth. (Office for National Statistics, 2012). As discussed in the section below there would appear to be an association between tobacco use and socioeconomic status.

Smoking by socioeconomic status

As stated previously there appears to be a link between socioeconomic status (SES) and smoking, with adults from backgrounds of higher deprivation showing higher smoking rates (Craig & Mindell 2008a, Robinson &Lader 2008). Conversely, the situation is ambiguous for adolescent smokers. There are few reports and a lack of research about adolescent smoking behaviour with regard to SES. For instance the Smoking, Drinking and Drug Use Study, 2007 uses no conventional measures of socio-economic status such as family structure, permanent residential housing, and car ownership. Instead, two alternative socioeconomic measures were used; firstly whether the child is eligible for a free meal at school and secondly, how many books they have in their home. It could be argued that whilst these measures may be indicative of socioeconomic status they are not necessarily a strong measure of it. Eligibility for free schools meals for example is a dichotomous measure, which does not reflect different possible levels of socioeconomic status. The Smoking, Drinking
and Drug Use Study conducted in 2007 in fact established no relationship between smoking and eligibility of the adolescent to free school meals, however, smoking prevalence was found to be considerably lower among those students who reported a

greater number of books in their home (Fuller 2008). This apparent inconsistency may suggest that eligibility for school meals does not adequately capture variations in socioeconomic status. Of course, even with these results it could still be questioned if the number of books in the home is the best method available to measure adolescent SES. Ideally, adolescent SES could be measured by establishing the SES situation of the parents and the family home, and using this as a proxy for the SES of the adolescent, although this would require a far more in-depth study.

There is some support elsewhere in the literature for a relationship between adolescent smoking and socioeconomic status. The 2005/2006 Smoking, Drinking and Drug Use Survey reported that among 15 year olds smoking prevalence rates were higher among those girls who belong to middle class families (Currie et al 2008). An overall relationship between adolescent smoking and social class has been found in Canada (Millar and Hunter, 1990), Scotland (Green et al., 1991) and the United States (Ashby 1995), with those in the most deprived areas demonstrating the highest smoking rates. In a secondary school survey conducted in England (Balding 1995) determined the respondent's families' social class position through categorization of the newspapers which they read at home. It was found that females from the highest social class were less likely to be smokers. Therefore, there appears to be a gender effect on the relationship between SES and adolescent smoking, although the evidence reported in the literature is inconsistent as to the exact nature of this relationship. This may be a reflection of the aforementioned issues with regards to how SES has been measured.

The relationship between women's social deprivation during their life course and their likelihood to be a smoker were further investigated retrospectively by Graham and colleagues (2006a, b). The aims of the study were to explore how unrelenting (continued) smoking links to social disadvantages developed during life course. The researchers came to the conclusion that in the UK smokers from poor childhood situations were more likely to be current smokers, while a women in a qualified and professional occupation was half as likely to be a smoker than those belonging to an unskilled or manual occupation. In contrast, however the continual smoking behavior of men was found to be more effected by current adult socioeconomic position rather than past childhood socioeconomic position. (Graham et al 2006a). The indicators of disadvantage that were used in the study included educational disadvantages (leaving school at an earlier age), childhood disadvantages such as motherhood (at an early age) and current factors, which could be disadvantages. It was found that every indicator independently contributed to the risk of being an adult smoker (Graham et al 2006a).

The negative relationship between smoking status and SES was also supported by the Liverpool Secondary School Longitudinal Study on Smoking among 12-16 year olds (Woods et al 2008). Different social, familial and economic indicators, which combined to manifold deprivation scores were used which was found to be associated with an increased risk of cigarette smoking in the last week by 96%. As with previous research, the frequency level of parental smoking in the sample was higher among those working in unskilled and low occupational groups (Woods et al 2008).

An association between low socioeconomic status and high risk of smoking in adolescents was also found in Viner et al's (2006) study conducted in East London in 2001. A further study of deprived groups of children by Meltzer et al, (2003) found that 32% of 11 to 17 year olds looked after by local authorities were current smokers. As a whole 69% of children who were living in residential care were current smokers.

Overall, therefore it could be concluded that there is evidence that the socioeconomic circumstances of adolescents and their families has an effect on smoking behaviour, however, there is a need for more consistent and appropriate measures to be used. The studies that have used more comprehensive measures have tended to be those focused on single geographical areas. Therefore, the issue is further complicated by the fact that regional differences exist on smoking rates and gender effects, as discussed previously. These inconsistencies in relationships between SES and adolescent smoking need to be resolved. Although it is accepted that education, occupation, and income are components of SES, further research is required to determine what social and other factors operate within various groups to produce differences in smoking behaviour.

Patterns of tobacco use

The Smoking, Drinking and Drug use survey of 2007 included a question about the number of cigarettes smoked by 11-15 year olds in the last week. In 2007, regular smokers (defined in the survey as those who smoked at least one cigarette a week) reported that their average weekly cigarette consumption was 44.1 cigarettes with a median of 38 cigarettes per week. (Fuller 2008).The number of cigarettes smoked was

higher on Fridays and Saturdays. The 2007 study also shows that among the 16-19 age group men consumed 10 cigarettes per day on average whilst women consumed 9. In the 20-24 year old age group these figures were 12 and 10 cigarettes per day for men and women respectively (Robinson & Lader 2008). Despite the decreases in the general population consumption over time, it has been noted that overall the number of cigarettes smoked by an individual tends to increase with age (Robinson & Lader 2008).

The General Household Survey (2006) and Smoking Drinking and Drug Use Survey (2006) both incorporated items on the ways in which tobacco is used. 74% of 11- 15 year olds reported primarily smoking pre-packaged filtered cigarettes, while 6% reported mainly smoking hand rolled cigarettes. 20% of respondents reported using both types of cigarette equally (Fuller 2007). Similarly the General Household Survey has also reported high usage of filter cigarette among 16-24 year olds, with 23% of smokers using hand rolled cigarettes(Robinson &Lader 2008). The results from both surveys show that fewer men smoked filtered cigarettes than women, with a ratio of63% vs. 83% among 11 – 15 year olds and 71% and 83% among 16 – 24 year olds for males and females respectively (Fuller 2007, Robinson & Lader 2008). The percentage of those young people who have reported other forms of tobacco is very low. Among 18-19 year olds 1% of men smoked cigars as compared to 2% of 20-24 year olds (Robinson & Lader, 2008).

Purchasing behaviour and access to smoking

It could be expected that higher tobacco outlet density may promote adolescent smoking not only by making cigarettes more accessible, but also by increasing environmental cues to smoke. However, in contrast to the USA and Canada there is little research in the UK which directly explores the effect of tobacco retailers (based on geographical density) on young people. In California a study conducted by Henriksen et al (2008) found a higher current smoking prevalence rate in those high schools surrounded by more than 5 tobacco outlets compared with those areas having no tobacco outlets in their neighborhoods. A similar Canadian secondary school survey found an association between density of tobacco retailers and access behaviour of young people. However, as commented elsewhere (e.g., Cohen & Anglin 2009) it is not necessarily the case that the density of tobacco outlets has a direct causal effect on adolescent smoking, it instead may simply be that they are a reflection of the patterns of smoking behaviour in the community. A study in the west of Scotland was conducted among secondary school pupils aged 13 to15 by Turner and colleagues. They concluded that children belonging to a disadvantaged catchment area, with higher smoking prevalence rates, can more easily get access to social and commercial sources of cigarettes compared to those pupils from similar deprived areas, which have lower levels of smoking (Turner et al 2004)

The Health Survey for England and Smoking Drinking and Drug use survey in 2006, shows that young people were successful in obtaining cigarettes from a variety of sources, even though the minimum legal age to sell tobacco was 16 at the time of these surveys. Various questions regarding purchasing behaviours were included in the

Smoking Drinking and Drug use survey in 2006 (Fuller 2007). The data from 11-15 year old smokers shows that a large proportion (65%) of smokers bought their cigarettes from a shop, primarily a tobacconists or newsagent. These percentages appear to change with age, with 77% of 15 year olds as opposed to 31% of 11 – 12 year olds using a shop as their source of cigarettes. Only 18% of 15 year olds reported finding it difficult to purchase cigarettes on their own as compared to the 26% and 44% for 14 and 11-13 year olds respectively. In addition, 53% of 15 year olds reported being refused the purchase of cigarettes at least once, however, only 10% of 15 year olds were refused when they were trying to buy cigarettes the last time they attempted to do so. 63% of the respondents reported other people, mostly friends, as their primary source of cigarettes. A smaller number (14%) reported purchasing cigarettes from a cigarette machine. There is also evidence that during the previous 20 years the number of those young people who buy cigarettes from shops and vending machines has significantly decreased, whereas the number of those who got their cigarettes from other people has increased (Fuller 2007).

According to the secondary school phase Liverpool Longitudinal Study on Smoking, many young children aged between 12 and 16 get their first cigarettes either by stealing them from parents, siblings or other family members (Woods et al 2008). The General Household Survey and Health Survey for England queried those who were smoking plain or filter cigarettes as to what kind of cigarette they smoked. The detailed results were not published in the reports, but it was noted that a wide variety of brands were reported. However, the amount of tar used in these cigarettes was identified, with

cigarettes with a high tar yield found to be more popular among males than females (Robinson & Lader 2008).

There was no information collected regarding cigarette brands in the Smoking Drinking and Drug Use Survey. However, the Cancer Research UK Centre for Tobacco Control Research (CTCR) has conducted a survey on youth tobacco and produced data on different brands used by 11-16 year olds. During 1999 to 2006, the most popular five brands were Benson& Hedges, Lambert and Butler, Mayfair, Richmond, and Sovereign. There were fluctuations among the popularity of these brands during this time period (Centre for Tobacco Control Research, 2008). For example, Benson and Hedges remained one of the top products in 1999, and was the most popular amongst the 11 – 16 year old age group, being the brand of choice for 70% of the respondents. By 2002 the brand was only used by 43% of respondents, with a further decrease to 28% in 2004. Lambert and Butler was also found to be more popular with regular smokers than occasional or social smokers. In 1999, a different brand, Richmond, was brought to the UK market, which became highly popular in younger smokers. Socioeconomic effects on brand preference are also evident, with Benson and Hedges more popular with those consumers at the mid to lower levels of socioeconomic deprivation. Low priced brands such as Mayfair and Lambert and Butler remained consistently popular, particularly with regular smokers (Centre for Tobacco Control Research, 2008).

Dependence, intentions to quit, and quit attempts

The Smoking Drinking and Drug Use Survey 2006 asked respondents how addicted they thought they were to smoking. Among regular smokers aged 11 – 15, 69% replied that it would be fairly or very difficult for them to not smoke for a week, whilst 77%

replied that it would be fairly or very hard for them to give up completely (Fuller 2007). Those who were heavier smokers and those who were currently smoking for more than a year reported a higher dependency rate. 43% of those regular smokers aged 11 – 15 reported in 2006 that they would like to give up smoking. Within this group, 67% had actually tried to stop smoking, however, only 6% replied that they used to smoke but no longer did.

According to the data collected family and friends were the main supporters for helping the smokers to stop smoking, highlighting the importance of familial and social influences in smoking cessation for this age group. 15% reported that they had tried nicotine replacement therapy, while 7% had reported trying because of the advice of adults at school. The number of smokers who had visited their GP for smoking cessation assistance was very low. Furthermore, only 3% had visited other NHS services or used its smoking cessation telephone helpline (Fuller, 2007).

The number of older age adolescent smokers who had attended the NHS stop smoking services is higher than those of younger adolescent smokers. In 2006-2007, a total of 20,823 smokers who were under 18 set a date for giving up smoking in NHS. The success rates, within a period of 4 weeks for male and female participants, were 26% and 24% respectively (National Health Service, 2008). The 2006 Health Survey for England reported 5% of girls and 6% of boys to be ex-smokers among the older adolescent age group. The 2007 General Household Survey found that 2% of 16-19 year olds and 10% of 20 – 24 year olds were ex-smokers, with females more likely to be ex-smokers than males (Craig & Mindell 2008a; Robinson & Lader 2008).

Overall, studies which have conducted research on factors related to quitting and quitting attempts in adolescents are limited in number, despite the fact that most people are aware about the benefits of quitting smoking. Studies which do focus on this important aspect could help in developing effective smoking interventions among young people.

Knowledge and attitudes about smoking

The data collected from the 2006 Smoking Drinking and Drug use Survey provides information about young people's knowledge concerning the dangers associated with the smoking and their attitudes about the possible effects of smoking (Fuller 2007). Among 11-15 year olds, almost all respondents were aware of the negative effects of smoking. 94% of respondents knew that smoking causes heart diseases; 98% knew about the link between smoking and lung cancer and 96% replied they know smoking can harm non-smokers. Among 11-15 year olds 97% thought that smoking could cause a person's clothing to smell of tobacco. During the course of these surveys, there has been evidence amongst the respondents that they are increasingly aware that smoking can increase the likelihood of experiencing respiratory infections (in 1994 79% agreed with this statement as compared to 85% in 2006). Similarly in 1994, 78% of respondents agreed with the statement that those who smoke are worse at sports than those who do not smoke, with an increase to 84% in 2006.

There was variance among the young people on opinions regarding positive statements about smoking. 65% reported that if people get nervous smoking can make them relax, 24% thought that smokers stay slimmer, 18% agreed with the statement 'smoking to a

certain level is not dangerous', 16% agreed that smoking can help people to cope with life and 4% agreed that smokers get more fun as compared to those who do not smoke (Fuller 2007). Similarly gender differences were evident, with males more likely than females to agree with positive statements about smoking.

Differences also existed by age, with those from the younger age group more likely to agree that smoking to a certain level is not dangerous, whereas those belonging to the older age group were more likely to agree that people can feel relaxation after smoking. Similarly as compared to the younger age group children from an older age group were more likely to agree that non-smokers remain slimmer than the smokers and that those people who smoke were more confident and can easily cope with life. These differences in opinions may be the result of personal experiences, which shows how some smokers agree with certain statements while others disagree (Fuller 2007).

Since 1999, the respondents from the Smoking Drinking and Drug use Surveys have been asked if they think it is ok to try smoking to see what it is like (the same question in 1999 and 2001 surveys used as an item based around' trying smoking once'). From 2002, the survey also asked was it ok to smoke one cigarette a week. The positive answers to the above questions decreased over time. In 1999, 54% of 11-15 year olds thought it would be ok if someone tried smoking while in 2006 only 37% of respondents agreed with this statement. Similarly, 25% of 11-15 year olds in 2003 replied that smoking one cigarette a week is ok, with 18% of the respondents agreeing with this statement in 2006.

The omnibus survey reports published by the Office of National Statistics on smoking give additional insight into smoking behaviours and attitudes of older age groups (Lader 2008). 28% of respondents from the age group 16-24 in 2007 reported that those who smoke are more likely to die before the age of 65. Overall, older adolescents were found to be more aware of the increased mortality rate of smokers, although all age groups demonstrated an understanding of the serious health risks associated with smoking.

One of the other objectives of these surveys was to explore opinions concerning planed and recent policy change. In 2007, among 16-24 year olds, 85% of respondents were in favour of the restriction of smoking in public places. Support was higher for restricting smoking in indoor sports arenas, while smoking in leisure centres was also criticized by the respondents. On the other hand, restricting smoking in pubs was not fully supported by young people. As a whole, a large number (76%) of young people, but not all, were in favour of new laws to be introduced for restricting smoking in public places. Those areas associated with children were mostly supported by the older age group for introducing smoking free legislation. As expected, those from the age group 16-24 least agreed with the introduction of new laws for increasing the legal tobacco purchasing age, although even then 76% supported new legislation compared with 9% of those respondents who disagreed or strongly disagreed (Lader 2008). It is important to note however that as discussed above these figures were obtained before 2007, when the minimum age to buy tobacco was increased to 18.These studies highlight the dynamic ways in which attitudes towards and knowledge of smoking can change in adolescent populations, and underlines the need for up to date research to be conducted if smoking

interventions are to be better informed. The fact that the vast majority of young people appear to be aware of the dangers of smoking could be argued to be a demonstration of the success of smoking education initiatives. However, on the other hand the fact that a proportion of young people continue to smoke despite this knowledge could be an indication that intervention strategies that go beyond increasing awareness of health consequences are needed. One of the important areas that needs attention is the act of lighting a cigarette for the first time as this may be motivated by curiosity and desire, not emotions or information. It could be argued those adolescents are often curious about the whole smoking experience and even though they might be aware of the health hazards they want to try smoking.

Adolescent smoking and the law

The purpose of increasing the age limit from 16 to 18 in England and Wales was to make it harder for children to buy cigarettes. The 2006 Smoking Drinking and Drug use Survey reported that increasing the legal purchase age appeared to affect the overall percentage of smokers, but that a large proportion of young people still managed to buy cigarettes and tobacco from different sources. In the first survey conducted after these changes 39% of respondents replied that it had become harder for them to purchase cigarettes as compared to 24% in 2006 (Fuller,2009). Similarly in 2006 the recorded percentage of regular smokers who normally bought cigarettes from shops was 78% compared to 55% in 2008 (Fuller, 2011).

In order to further reduce rates of adolescent smoking the Government issued a health and safety bill called the Health Act 2009, which included various procedures for child

protection including bans on the display of tobacco products and prohibition of vending machines, which came into force in 2009. All these changes will be fully implemented in 2013 in all shops and points of sale in England (Department of Health, 2009). In 2007 there were a total of 70 prosecuted cases of tobacco sales to under age people, of which 50 cases resulted in a conviction (Office for Criminal Justice Reform, 2009). In April 2009, several immigration and criminal justice acts stated that the license of those tobacco retailers will be cancelled if they persistently sell tobacco to under age customers. However, as argued by Lancaster and Stead (1999) legislation and enforcement may reduce rates of adolescent smoking, but it is unlikely that those measures alone will eradicate it. Further research needs to be done in order to know whether any of the above legislation can actually prevent adolescent smoking and whether these children actually purchase the same cigarettes they smoke. However, it can be argued that reduction in smoking rates may depend on the ability to influence adolescents in the early phases of smoking uptake.

Second hand smoking or passive smoking

The process through which smoke is emitted from the burning of tobacco or cigarettes, with a combination of smoke exhaled by the smokers and inhaled by non-smokers is called second hand smoking (World Health Organization, 2007). When a person burns a cigarette, the smoke of the cigarette dilutes into the air and the smoke can be unwillingly inhaled and exhaled by the other person in the form of side stream or mainstream. Smoke that comes from the process of inhaling and exhaling after taking a puff is called mainstream smoke, while side stream smoke is used to refer to smoke that

goes to air directly from a cigarette or cigar. In second hand smoking, side stream smoke is the one which is most often inhaled by third parties (US Department of Health and Human Services, 2006). An estimated 4000 different chemicals in the form of gases and particles are found in mainstream smoke, most of which were highly toxic and 70 of which are carcinogenic (International Agency for Research on Cancer, 2004). Various environmental conditions and the passage of time can further effect the concentration and amount of these particles and gases (US Department of Health and Human Service, 2006).

The issue of second hand smoke is arguably especially relevant to children and adolescents as they may share a home with a smoking parent, and in general have less control over the smoking that occurs around them in their environment. The World Health Organization reported that approximately half of all children in the world (around 700 million), are exposed to second hand smoking by 1.2 billion adults (World Health Organization, 2010). Surveys in the 1980s and 1990s found that in the UK nearly half of all young people lived in houses where there was at least one smoker (Jarvis et al 2000). There was a 10% decline in these figures during early 2007 when it dropped to 40% (British Medical Association, 2007). During the same period the percentage of children who were living in homes where there were no smokers rose to 37% in 2007 as compared to 21% in 1996 (Jarvis et al, 2009). Such increases in the number of non-smokers within the home could be attributed to multiple factors, including smoking free legislation, treatment advances and health campaigns awareness.

The body of a young person is more at risk to passive smoking compared to adults. This is because they inhale or breathe the pollutant more quickly, due to a lower body weight

(Canadian Institute on Child Health, 1997). However whilst it is evident that passive smoking is dangerous for young people it is still not clear from the literature how much smoke non-smokers do typically inhale from smokers. According to the World Health Organization passive smoking can cause a number of diseases in children like pneumonia, cot death, ear infections, cardiovascular disease and bronchitis (WHO, 1999). The Scientific Committee on Tobacco and Health UK (SCOTH), 2004 has verified these reports after reviewing the evidence from their first report published in 1998. The SCOTH added that smoking is hazardous to health and no child or adult should be exposed to passive smoking. A similar report entitled Passive Smoking and Children was published in 2010 by the Royal College of Physicians explaining that the exposure of children to passive smoking can lead to a reduction in respiratory functions and associated problems which costs the NHS about £23.3 million per year, resulting in 9,500 hospital admissions per year and creating more than 3,000,000 appointments with General Practitioners (Royal College of Physicians, 2010). Furthermore, in 2009 the American Academy of Pediatrics presented evidence that chronic conditions such as sickle cell disease in children can also be caused by second hand smoking (Best 2009). Long-term damage to the olfactory system of children has also been noted (Nageris, 2001).

One common childhood condition that is particularly affected by the presence of second hand smoke is asthma (Cabana et al 2005). Previous research has identified three main potential causes which lead to asthma specifically, homes near to main roads, lack of essential nutrients in fruit (as lung function is associated with fruit intake) and second hand smoking exposure. However, a study conducted in the UK by Lewis et al (2005),

claims that there is no association between asthma and people living near main roads, a small or negligible association between fruit intake and asthma but a strong relationship between asthma and smoking exposure. It has been demonstrated that the occurrences of asthma increase when the number of smokers in a home increases, and that children are more likely to develop asthma if their parents smoke. Hence the authors argued that exposure to second hand smoking is one of the most important and preventable determinants of asthma. (Lewis et al 2005). It has also been found that those children suffering from asthma and whose parents smoke have more chances of experiencing asthma attacks repeatedly throughout the year compared to children of non-smoking parents (Cabana et al 2005).

Research has also suggested that exposure to secondhand smoking can lead to lymphoma and brain cancer in childhood and some cancers in adulthood (British Medical Association, 2007). A Swedish study reported that parental smoking is one of the major contributing factors to the development of different types of cancer in their children. The risk of lung cancer is increased by 17% and the increased risk of oral and digestive cancers, which include cancer of the tongue, lips, salivary glands, floor of the mouth, nasal cavity, middle ear, mouth floor, windpipe and oral region, are increased by 45% (Hemminki& Chen 2006). Overall children from smoke free areas were three times less likely to develop cancer later in life as compared to those younger people who are been regularly or daily exposed to second hand smoking (British Medical Association, 2007). Furthermore, those children who were constantly exposed to second hand smoking at home have greater chances of early adulthood emphysema (Lovasi et al 2010). In addition, those students who are exposed to second hand smoking are

recorded to have a greater absentee rate from school (Mannino et al 2001, Gilliland et al 2003). One potential consequence of this is that such children engage less with health education and physical activity campaigns implemented in the school setting.
It is important to note here that though many researches have reported an association between passive smoking and various diseases including lung cancer and heart diseases, there are various other factors which may be associated with these diseases. For example, lung cancer is also caused by an unhealthy diet, occupational hazards and exposure to dangerous substances such as radon. Similarly, heart disease can occur due to an unhealthy diet. As these factors can also be associated with low socioeconomic status it becomes difficult to untangle the causal relationships between second hand smoking and adolescent health, and the other processes which may account for these conditions.

As will be discussed in greater depth at a later point there are also potential social effects of witnessing smoking in others, which are separate from the direct health effects. Those children living in areas where people around them smoke are more likely to start smoking (Royal College of Physician, 2010). Similarly, those young adults who grow up in a smoke free home are more likely to settle in a smoke free place in later adulthood. (Albers et al, 2009). This highlights the importance of the family environment in predicting later smoking behaviours, as will be discussed in subsequent chapters.

Second hand smoking inside the home

It is well recognized that second hand smoking is dangerous to others (Scientific Committee on Tobacco and Health, 2004) and in the UK, smoking in work and public

places has been banned since July 2007. However, there is a lack of measures to reduce the exposure of children to second hand smoke in the home, where exposure could be argued to be most likely to occur. It has been noted that strategies that individuals may use at home to reduce exposing others to second hand smoke, such as only smoking in certain rooms, provides little protection. (Carrington, 2003: Centre for Community Child Health, 2006). Furthermore, Ott et al (2003) noted that smoke from a single cigarette can stay in a room for 2 – 3 hours, even if a window has been opened. Similarly, further measures such as smoking near an extractor fan or smoking whilst leaning out of a window are also insufficient approaches to clearing rooms from second hand smoke. Further research shows that second hand smoke can permeate walls, furnishings and carpets, which then steadily release the pollutants back into the household (Matt et al,2004).

The 2007 Health Act: Smoke free Legislation

With the approval of the 2007 Health Act by the United Kingdom government, smoking is prohibited across the whole country in all workplaces and enclosed public areas. The Attitude and Smoking related behaviour survey conducted in 2006 shows that 61% of respondents reported that smoking is not permitted inside their homes. This figure rose to 69% in 2008-09 after the smoke free legislation was introduced. 10% of respondents replied that smoking is allowed everywhere in their home with a further 20% allowing smoking at certain times and areas (National Health Service, 2009).

A study by Pell and Haw (2009) reported that implementation of a wide range of smoke free legislation in various countries resulted in 80% - 90% reductions in exposure to

second hand smoking .This was associated with a decrease in hospital admissions for heart attacks and improvements in respiratory functions (Pell and Haw, 2009). Recent studies on smoking have noted that smoke free legislation has resulted in a general decrease of 17% in acute myocardial infarction (Meyers et al, 2009, Schroeder, 2009). An Irish study found that within the first six weeks of the smoking ban in the country, significant reductions of up to 70% in saliva cotinine concentrations (a biomarker of a metabolite of nicotine) and 80% of air nicotine levels had been reported in hospitality workers. Before the implementation of this law, 68 % of workers reported an average of 21 hours a week of exposure to second hand smoking. After the ban, 70% of the workers reported no exposure to second hand smoking at all (Mulcahy et al 2005). In a review of the effectiveness of smoke free legislation across Europe in 2008, Lotrean concluded that the laws -

“Are well accepted by the public, lead to a significant decrease of exposure to second hand smoking in public places and have the potential to contribute to the reduction in overall cigarette consumption. Researchers documented important short-term effects on the respiratory system health of workers from the bars and restaurants after the introduction of the law. Moreover, important short-term effects on the rates of hospital admission for acute myocardial infarction were observed” (Lotrean, 2008).

Smoking in cars

Whilst the smoking ban appears to have been effective in reducing the harm associated with second hand smoking in many settings, there remain several gaps where the legislation does not apply. One such setting, which is especially relevant to young

people and families, is in vehicles. Smoking in a vehicle used for work purposes is prohibited, but in a vehicle for private use it is not. Several researchers have noted that the concentration of second hand smoking in vehicles can be higher than in almost any other setting (Ontario Medical Association, 2009). Child and adolescent exposure to second hand smoking in cars specifically is a serious problem because as compared to adults, children have considerably higher respiratory and metabolic rates. A study in Australia found that the risk of developing a wheeze is double among those children that were exposed to parental smoking inside the family car as compared to those children that were not exposed (Sly et al, 2007). A similar Irish study significantly found higher levels of wheezing and considerably lower levels of asthma and bronchitis among those children that were exposed to second hand smoking inside cars as compared to unexposed children (Kabir, et al, 2009). A study evaluating the exposure of adolescents aged 12-19 years in Canada concluded that second hand smoking in both cars and homes was found to be associated with chronic bronchitis (Evans J & Chen Y, 2005).

Such research has led to comments that exposing children and adolescents to second hand smoke in a vehicle could be considered to be a form of child abuse, as children are often not autonomous in their decision about whether or not to ride in the family car (Jarvie and Malone, 2008). This work also raised the question of whether children from certain groups are more likely to be exposed to this hazard, such as for example children living in rural areas where traveling in a vehicle can be a key part of family life. It would be of interest to explore the relationship between this risk factor and socioeconomic status. As discussed previously adults from more deprived areas have been found to be more likely to smoke. However, it may be that those families from

affluent backgrounds are more likely to be able to afford and operate a vehicle. If this is the case then it could be that whilst the overall rate of smoking is lower in this group the net harm caused to children through exposure to second hand smoke is greater.

Smuggling of tobacco in the UK

Among all traded cigarettes worldwide, 11.65% are smuggled every year, which is equal to 657 billion cigarettes a year, which in turns costs governments worldwide around US$40.5 billion (Joossens et al 2009). Tobacco smuggling in the UK was high in the 1990s when the UK tobacco industry estimated that illegally imported cigarettes constituted 25% to 30% of all tobacco sales (DTZ Pieda Consulting, 2000). The amount of cigarettes smuggled into the UK and subsequently purchased by adolescents is not clear. Data from the Toolkit study on smoking shows that among 16-24 year olds, 30% of respondents bought their cigarettes illicitly, the highest percentage from any other age group (Action on Smoking and Health, 2008). The manual labour socioeconomic group was found to have the highest percentage of those who bought their cigarettes illegally.

HM Revenue and Customs state that they have managed to reduce the proportion of smuggled cigarettes to 11% of the UK market since 2000 (HM Revenue & Customs, 2010), whereas less progress has been made in reducing illicit hand rolled tobacco. An estimated 49% of hand-rolling tobacco in the UK during the year 2008-2009 was smuggled, similarly in 2008-09 tobacco smuggling and fraud in the UK resulted in approximately £1.1bn - £3bn loss in revenue (HM Revenue & Customs, 2010).

Tobacco smuggling undermines the actual tax raised by the government as such tobacco is sold on the black market for half the price of legal products. One of the effective ways of reducing consumption of tobacco is to increase tobacco prices above inflation rate (Jha and Chaloupka, 1999). Those people living in low socioeconomic areas may therefore be attracted by cheaper prices and smuggled tobacco, which hinders the quitting process and creates health problems. A research study conducted by ASH, concluded that among the poorest smokers, one in four as compared to one in eight of the most affluent smokers bought smuggled tobacco (Action on Smoking and Health, 2008). Some researchers have shown that eradicating tobacco smuggling could result in an overall reduction in cigarette smoking of up to 5 per cent, ultimately reducing the mortality rate from smoking related causes by 4,000 deaths a year (West et al, 2008). This issue is relevant to smoking in adolescents because it demonstrates that focusing prevention strategies on 'official' sources of cigarettes such as newsagents may not be enough to limit the access of young people to cigarettes.

Tobacco and the environment

The process of manufacturing cigarettes can create additional harm to young people and their families beyond the direct effect of smoking, through exposure to hazardous chemicals and environmental damage. Pesticides such as, Acephate, Chlorpyrifos, Aldicarb, Imidacloprid, Methyl bromide, 1-3- dichloropropene and Thiodan are used for tobacco plant growth which are highly poisonous. It is has been observed that in underdeveloped countries (which are the main producers of tobacco), there is a lack of training and knowledge about how to handle the dangerous chemicals used in tobacco

farming. The farmers from these areas are highly vulnerable to different diseases, as they have no access to proper protective equipment (Golden leaf barren harvest, 2001).

The use of tobacco pesticide is not only harmful to human health but it can also lead to “Green tobacco sickness” or (GTS) among tobacco pickers, many of whom in underdeveloped countries are children. Wet tobaccos contain nicotine, which can be absorbed through the skin. The consequences of this can include dizziness, increased heart rates, weakness, vomiting and variations in blood pressure. The Plan UK, a children’s rights organization, has highlighted in a report that young adult tobacco pickers are highly vulnerable to GTS as skin absorption rates can be up to 54mg of nicotine a day. (Plan UK, 2009)

A large amount of trees are cut down for making tobacco storage rooms and heating rooms for the process of curing, especially in developing countries. Nearly 200,000 tobacco-cultivating families in Brazil consume 3kg of wood to produce I kg of tobacco (Geist et al 2009.) In semi-arid areas, tree lose can increase the chances of desertification, which is unsuitable for vegetation. Furthermore, tobacco plants utilize extra nutrients as compared to other crops, which results in additional soil degradation (Barry, 1991).

The process of making cigarettes is a complex phenomenon, which results in different waste products like paper, plastics, solvents, slurries, air pollution and covering materials (Novotny, 1999). Hence, the manufacturing produces airborne, solid and liquid wastes, which are all a source of hazard, but the chemical waste in particular is more harmful than the others (Novotny, 1999). A study carried out in the United States in

1992 indicated that the process of tobacco manufacturing results in 27 million kgs of unsafe chemicals waste from which 2.2 million kgs was released into the environment. During that time, tobacco industries were ranked 18th in the total chemical waste production list (Dorgan, 1995).

Various countries throughout the world accept cigarette waste as one of the major types of street litter (Moriwaki et al, 2009:,Oigman, 2007:,Martinez et al 2007). Cigarette butts in UK urban areas constitute 70%-90% of all littering, which shows the prevalence rates of cigarettes in the country. Since the introduction of the smoking ban in 2007, it is of course possible that littering has increased, as more people may be smoking in the street outside of bars and restaurants. The tobacco industry has however tried to refute the environmentally harmful effects of cigarette manufacture and use in several court cases in the United States (Monbiot, 2006). Aside from the environmental effects, the littering of cigarette butts outside of bars and clubs may have an additional effect on young people, by suggesting that cigarette smoking is a social norm in these settings. It may also increase the visibility of smoking behaviours to adolescents as young people, as they witness people standing outside of bars to smoke.

Chapter 2 - Socio-psychological factors of adolescent smoking

Smoking is a multistage process in which people start from never smoking and no experimentation with cigarettes, moving to addiction and habituation and finally adoption of regular smoking (Goddard 1990). Different criteria have been used to identify these stages, which includes the smoking history of the respondent, patterns of smoking and levels of dependence. These stages serve as a leading pathway on which individuals become smokers or non-smokers, while some people move forward and back between these stages. Hence, there may be gaps of months or years between periods of smoking. This can create challenges in the research of smoking in adolescents and others.

Parental factors and adolescent smoking

Many longitudinal and cross sectional research studies carried out in North America, the United Kingdom and Europe have shown the association between parental smoking behaviours and adolescent smoking (Green et al., 1991; Bailey et al., 1993; Jackson et al., 1994). The contribution of parental smoking to adolescents is evident (Avenevoli & Merikangas, 2003; Hill et al., 2005), although through disapproval and proper monitoring, parents can reduce levels of smoking in children (Chassin et al., 2005; Sargent & Dalton, 2001). Numerous aspects of parenting have been found to be interrelated to a variety of problem behaviours in adolescents including externalizing behaviour as well as the uses of other substances with smoking. However, these wide-ranging variables do not seem to be directly connected to adolescent smoking (Chassin

et al, 2005). Further research is required in this area to identify the influences of parental psychological control over adolescent smoking behaviors. In recent years, parental monitoring has received specific consideration in connection with adolescent substance use, with extensive literature not only showing significant associations between parental monitoring and increased risk of alcohol and smoking but to other deviant behaviours among young people as well (Barnes & Farrell, 1992; Chilcoat & Anthony, 1996; Steinberg, Fletcher, & Darling, 1994). Observational research has also found an association between the risky behaviours of adolescents and proper parental involvement or monitoring. For instance, the connection between peer influences and smoking behaviour can be effectively weakened by parental monitoring during early adolescence (Sargent & Dalton, 2001) and the use of alcohol in late adolescence (Wood et al, 2004). It should be noted here that the effectiveness of parental monitoring and involvement in reducing their children's risky behaviour may greatly depend on family relationships and family management skills. As argued by Padilla et al (2008) and that parental relationships that are close and supportive reduce the risk of adolescent substance use.

Several studies have looked at parental antismoking socialization, which refers to the rules imposed by parents regarding smoking and the punishments and rewards used to deter their children from smoking (Jackson and Henriksen 1997, Chassin et al.2005; Harakeh et al.2005). This assumption of reward and punishment is also supported by Albert Bandura, in his social learning theory in which he explained how children will be more likely to model certain behaviours followed by reward or punishment, as will be discussed in more detail in chapter 3 (Bandura, 1977). Smoking associated

communication is the key part of anti-smoking socialization, through which parents describe home rules in the form of antismoking messages (Clark et al, 1999), as well as explaining the reasons for not smoking, which in turn can greatly reduce adolescent smoking risk to a lower level (Chassin et al. 1998). However, it has been noted that the effectiveness of such conversations depends on the nature of the parent-child communication. If communication occurs in a respectful and positive way, parents are more likely to prevent their children from smoking (Harakeh et al, 2005). It could be questioned how the smoking status of parents influences the parent-child anti-smoking communication, and specifically whether the effectiveness of this communication is undermined by the fact that the parents themselves smoke.

Inconsistencies in the literature are evident. Some studies have found no relationship between parental smoking specific communication and adolescent smoking (den Exter. 2006; Ennettet al, 2001). These findings may be attributable to different methodological approaches. As with many studies in this area, the work by Harrakeh et al (2005), was based on a cross-sectional design. Ennett et al (2001) alternatively used a longitudinal study to highlight that the relationship between the parent–child communication of rules and stated that the relationship between parent communication and adolescent smoking is a reciprocal one. Specifically, he also noted that smoking by adolescents at baseline predicted parent–child communication at a follow-up measurement, and vice versa. Therefore, smoking by adolescents may prompt parent-child communication as well as being moderated by it. More longitudinal studies are essential to confirm such findings.

It is clear from existing research that young people living in smoking families are more likely to start smoking, with those who have two parents who smoke even more likely to

begin smoking themselves (Peterson et al., 2006). However, this relationship is not always a straightforward one. Several other researchers such as Griesbach et al (2003); Fidler et al (2008) and Otten et al (2007); found that children residing with both biological parents remained less susceptible to smoking than those living in reconstituted or single parent families. It could be argued that within a reconstituted family there may be additional tensions around family structure, which could be associated with deviant behaviours that are associated with the initiation of smoking.

Maternal smoking has been found to be more influential on adolescent smoking than paternal smoking (Griffin et al 1999; Rosendahl et al 2003; DeVries et al 2003), while smoking initiation of daughters is closely associated with maternal smoking than with sons (Ashley et al 2008;Kestila et al 2006). From the literature concerning parental style, it is assumed that punitive and varying parenting is associated with increased risk of child smoking (Fleming et al 2002). Similarly, the association between authoritative parenting and current smoking among high school students seems to be positive, while both autocratic and permissive styles of parenting are found to be equally important in predicting the probability of current smoking (Castrucci and Gerlach 2006). There may be differences in effects of parenting styles among various ethnic and racial groups. As reported by the U.S. Department of Health and Human Services, 1994 that parental smoking may be more influential for non-Hispanic Caucasians than for others. Similarly, a school study conducted by Cohen and Rice in 1997, found the same result concluding that white students perceived parents as less authoritarian than Hispanic and Asian students.

Active monitoring and parental control such as awareness of activities outside the home (Blockland et al 2007; Hill et al 2005) and the expectations of parents against their children's smoking (Simons-Morton 2004) were found to be effective in preventing child smoking. A lack of time spent interacting with the family has also been found to be predictive of an increased risk of adolescent smoking (Garmiene et al 2006). Some studies about family smoking history have concluded that parental former smoking is associated with adolescent smoking. The risk of smoking initiation is higher among those adolescents who have parents who have previously smoked (but now quit) than those with parents who had never smoked (Bricker et al., 2006; Den Exter Blokland et al, 2004; Otten et al, 2007).

There is a relationship between adolescent smoking and the time when parents quit smoking (Den Exter Blokland et al., 2004; Farkas et al, 1999). If the exposure of the adolescent to parental smoking is shorter, they are less likely to follow the parents and will have a lower chance of smoking initiation. However, it could be noted that association may simply reflect the availability of cigarettes around the home, particularly in light of the research discussed in the previous chapter, which demonstrates that many young people obtain their cigarettes by stealing them from family members. Similarly Farkas et al (1999) reported a relationship between smoking behaviours in children and the moment of parental smoking cessation. Though a large number of studies have reported different effects of parental smoking and parental style on child smoking, less literature has covered the interrelationship of these variables in adolescent smoking studies (Andrews et al 1997; Doherty & Allen 1994). Similarly, the findings from studies on smoking specific parenting practice and adolescent smoking

also varies, depending on whether the focus is on the parenting style of the mother, father or both parents.

Doherty & Allen, (1994) explored the advantages of authoritative parenting and concluded that children were less likely to start smoking when they currently had smoking parents with greater emotional connection with adolescents, than those current smokers' parents with less emotional bonding. A similar positive effect of parent-adolescent attachment was also found by Foshee and Bauman (1992) but again reduced levels of smoking in adolescents were observed if neither parent had ever smoked. Unlike Doherty and Allen's (1994) findings, Foshee & Bauman's (1992) study found a close association between more attachment and a higher risk of smoking among those adolescents with parents who had a history of smoking. This idea was supported by Andrews and colleagues (1997) who reported that if the relationship of the mother (who had a history of smoking) with the child is positive, the child will be more likely to smoke. Other investigators e.g., Foshee & Bauman, 1992; Andrews et al.1997) have also commented in that a positive relationship of parents with children can have a protective effect.

The influence of genes in smoking behaviour formation is a relatively new research area. The role of genes in smoking behaviours has been demonstrated by family and twin studies, which have found evidence of a genetic effect (Madden & Heath 2002; Rose et al 2003). Broms (2008) has argued that better smoking prevention measures for adolescents can be developed if the interplay between environmental and genetic factors is more fully understood.

When considering the relationship between parenting, family structure and adolescent smoking it is necessary to take into account the context in which this occurs. The bulk of the research discussed above was conducted in the USA or Western Europe, where family structures can be different to other parts of the world. There is also the fact that the types of family structures that make up society change and evolve over time. According to the 'Families and Households 2011' report from the Office for National Statistics (ONS, 2012), children in the UK are three times more likely to live in one-parent households now than they were in 1972. An analysis conducted by Griesbach et al (2003) examined family structure and smoking among adolescents in seven European countries, including the UK, and concluded that there is a significant association between family structure, parental own smoking, factors and adolescent smoking. Adolescents from single parent families were found to be at a greater risk of smoking, although this association may also be a reflection of the socioeconomic effect of the lower income that a single parent family may have.

However even with this work in Europe it remains the case that the majority of studies on parental influence have been conducted in the USA. There is a need for studies which look specifically in the role of family influences in the UK. As will be discussed in the following sections family influences do not exist in a vacuum but instead operate through the context of ethnicity, socio-economic status and wider factors such as neighbourhood and community.

Sibling and adolescent smoking

Despite the recognition that smoking of siblings is a crucial risk factor for tobacco use and smoking initiation (Flay et al 1999) less empirical work has been done on siblings as compared to peer and parental influences. The importance of the effect of siblings on tobacco use was emphasized by several studies, which have argued for further rigorous investigation of mutual influences of siblings (Rajan.et al 2003; Vink et al 2003). One notable study is that of Avenevoli & Merikangas (2003) who concluded that sibling smoking is an even more influential factor for youth smoking than parental smoking, a result found elsewhere (Boyle et al 2001). It could be argued that since, in most cases, children share the same home environment as their siblings, any apparent association may be due to common underlying factors. In addition, there is a lack of research on how the age gap between the individual and their siblings influences this type of relationship.

A sophisticated developmental design presented by Duncan et al (1996) suggested that the older siblings do indeed influence the smoking behaviour of younger siblings, as determined by various measures. As with previous research, it was also noted that sibling influence appeared to be greater than parental influence. Work of this type has led to calls for further research on sibling smoking behaviour and how this can be integrated into smoking prevention strategies (Avenevoli & Merikangas 2003:Darling&Cumsille 2003).

A twin pair's adolescent study in Minnesota concluded that tobacco use initiation can generally be described through common environmental factors rather than genetic factors (Han et al.1999). This claim has been debated in the literature, with some studies arguing for the shared importance of environmental and genetic effects (McGue

et al. 2000; Rende et al.2005; True et al, 1997). Using data from Sweden, Finland and Australia Madden et al (1997) stated that family factors effecting adolescent smoking were independent and unique from genetic effects. This was supported by a subsequent twin cohort study of approximately 1300 people, which demonstrated that shared environmental factors appeared to explain tobacco and alcohol initiations (Stallings et al 1999).

In summary, data from several countries regarding twin studies of young people and adults indicates that for smoking initiation and acceleration, shared environmental effects remain crucial etiological factors, which supported those claims which strongly believe that genetic effects can sometimes deliver the evidence of social effects (Rutter et al 2001). However as with research on parental influences there is a lack of UK research on sibling influence on smoking behaviour.

Neighborhood and community

There is a lack of research available, which studies the effects of neighborhood context on adolescent smoking. However, researchers have recognized the need to include ecological variables in studies of adolescent drug use because neighborhood characteristics, such as drug availability and acceptability, may influence individual drug taking behaviours (Jang & Johnson 2001). As commented previously substance use is often identified as occurring more frequently in poor neighborhoods and communities (Wilson, 1996; Boardman et al, 2001). However, the link between neighborhood and socioeconomic status is not perhaps always straightforward. For example, a study of Chicago adolescents indicated that neighborhood poverty was not related to cigarette

use (Reardon et al, 2002). Researchers have also found that the effects of neighborhood and community disadvantages on cigarette use differ according to race/ethnicity and neighborhood racial composition. For example, Diez Roux et al (2003), in a study of young adolescents, found that neighborhood or community disadvantages were associated with smoking prevalence rates among Caucasian residents, but not among African Americans. Hence, such findings may suggest that certain neighborhood's characteristics can either promote or discourage cigarette use among adolescents.

According to the Health Behaviour in School-age Children (HBSC) 2002 study conducted in England, one in four young people who smoke reported a low sense of neighborhood belonging, compared with those 14% who had a high sense of neighborhood belonging. This was established through several measures such as whether they felt they could trust neighbors or could ask members of the community for help. (Morgan et al 2006). In addition, those young people who were not attached to neighborhood organizations or clubs were most likely to be smokers as compared to those with higher involvement. Similarly, the percentage of smokers amongst those who did not consider themselves safe in their community was 27%, whereas only 15% of those who reported that they felt safe were smokers (Morgan et al 2006).

Before the introduction of smoke free legislation in the UK, smoking prevalence in more disadvantaged communities was higher than affluent communities, as smoking in workplaces, pubs and bars and other socioeconomic disadvantaged areas was not banned (Woodall et al 2005). Therefore, children at that time would have been

disproportionally exposed to adult smoking in disadvantaged communities. More research needs to be focused on studies, which analyze the relationship between youth smoking and community norms. It may be possible that family characteristics may partly determine the integration of the family into the community, and the sense of belonging that the young person has with the neighborhood. For instance it could be expected that parents may interact with each other through mother and toddler groups, or that families with larger families will have greater connections to each other through their child's school. Therefore, studies investigating neighborhood effects on children's development should also account for other family characteristics, such as income, composition, and parents' education, age, and race or ethnicity, to explore the interaction between family structure and neighborhood.

Ethnicity

There are a number of possible mechanisms related to family through which ethnicity may influence adolescent smoking, such as for example the aforementioned topic of family structure. It could be argued that certain ethnic groups (especially eastern) that come to live in the UK will have more traditional attitudes to family structure and have more interaction between family members. As reported by Ballard (1982) in a South Asian study that despite being British-born young Indians, they have retained many elements of their traditional family structures that make it different from a British nuclear family.

There is though a lack of data in the national surveys regarding the relationship between smoking prevalence and ethnicity. In 2001, the Smoking Dinking and Drug-Use study conducted in state independent or grammar schools in Birmingham, Oxfordshire

and Northamptonshire with a sample size of 6,020 from 15 and 16 year olds, concluded that a higher percentage of white young females smoke as compared to the Asian and Black girls (Rodham et al ,2005). Another smoking prevalence survey on Non-Asians and British-born south Asians (from Banglasdesh,India and Pakistan) between 15 and 16 year was olds was conducted by Bradby and Williams (2006) in Glasgow in 1992. A follow up was conducted in 1996 when the participants were 18 to 20 years old and had left school. It was found that on several measures, Non-Asian participants from both the age groups 14-15 years and 18-20 year olds had higher rates of smoking experimentation and regular smoking than the young Asian people of the same age groups. As compared to the non-Asian males, the percentage of those Asian males who had reported ever having smoked increased from a low level in 1992 to a nearly equal level of weekly consumption four years later (Bradby and Williams 2006). As discussed above such smoking variances among different ethnic groups may be attributed to variation in family systems and the influences of family members through which families affect ethnicity. The analysis by religion from the same study did not show any significant differences in smoking by males. Muslim females reported higher experimentation than Hindu or Sikh even though the current smoking statuses of both the groups were low compared to Christian women.

In 1997, a cross- sectional study was conducted in the metropolis areas of the Midlands at secondary schools. The aim was to know about the influences of ethnicity on the smoking intentions of Indian, African, Pakistani, Caribbean and White disadvantaged young people (Markham et al 2004). The result of the study shows that there were variances in future smoking intentions by gender and ethnicity. The differences in future

intentions among different ethnic groups were smaller in boys whilst relatively higher among females. In another study Viner et al (2006) analyzed data from a sample of 2,789 children from year 7 and year 9 classes. It was concluded that those children living with a single parent, suffering from continual illness, experiencing poor mental health, and those who were overweight were more likely to be regular smokers. Those born outside the UK, and especially those from India, Pakistan, Bangladesh and, Black African ethnic groups had a lower level of regular smoking (Viner et al 2006).

In 1999, a qualitative research project in Glasgow examined 47 respondents aged 16-29 (who traced their origin from India and Pakistan) and explored the influences of ethnicity, gender, religion and generation in the initiation or avoidance of tobacco and alcohol. The results suggested that among Asian females the level of smoking was lower than drinking, while public smoking was higher in men (Bradby 2007). Similarly, female participants who reported a strong link to the community regarded smoking as 'unladylike' and a 'shameful act'. In terms of religious affiliation the relationship between religious identity and smoking was not found to be strong, although the degree of tolerance to smoking was higher in the religion of Islam whilst less tolerated in Sikhism (Bradby 2007). The effect of ethnicity on smoking can also be indirect. A qualitative research project conducted in London in 2002, for example, noted that anxieties relating to verbal harassment and racial attacks can prompt cigarette use and smoking (Croucher&Choudhury 2007).

Generally smoking prevalence among ethnic minority group declines with age. (Health Survey of England, 2004). The highest rate is recorded in age group 16-34, except in

South Asian and Black Caribbean men in whom the 35-54 age groups showed the highest prevalence rate. During 1999 and 2004, the general population of male smoking rate saw a decline from 27% to 24% over 5 years. The result showed no significant decline among ethnic minority populations except a decrease in Irish women and men from 33% to 26% and 39% to 30% respectively. The Black Caribbean population also saw an overall decrease from 35% to 25%.

Studies based on using saliva cotinine measures rather than to self-report show a higher prevalence among different ethnic groups. For instance based on saliva cotinine levels, the tobacco usage levels in Bangladeshi men and women were 60% and 35% respectively. However, the self-reported tobacco usage figures for this group were 44% and 17% respectively (Health Survey of England, 2004). As is a frequent issue raised about surveys based on self-reporting it may be that individuals under-report their use of substances. However, there is a lack of studies, which have directly compared validity of substance use by self-report in different ethnic groups. As such it is difficult to fully judge how to interpret the different figures reported by different studies.

Peer group

The importance of peers during early adolescence cannot be neglected (Steinberg, 2002). Peers exert a major influential role in the social context (Kobus 2003) and the smoking of peers is considered a powerful predicator of child smoking (Alexander et al 2001). The relations of an individual with peers are more important in the teenage stage than in earlier childhood (Engels et al1997). In this stage, a teenager is looking for friends, wants to spend some time outside, is looking for group membership and is sensitive about the norms of such groups (Hartup,1997). Lack of early familial control

like low parental monitoring and not being aware of a child's whereabouts could increase the chance of child association with substances (including smoking) using peers who can engage their children in smoking.

The association of the adolescent to peers is linked to family and parental factors in other ways. According to Steinberg (1990) adolescents actively try to disengage themselves from the social influences of their parents in order to fit with the norms of their peer group. Another reason why peers are more influential socially is that an adolescent spends most of their time interacting with their peers (Bearman, 2002). Friends can greatly affect the present and future behaviours of the adolescent smoking, as documented in both longitudinal (Murray et al., 1983; Chassin et al**.,** 1986) and cross sectional studies (Aitken, 1980; Eiser et al., 1991: Melby et al., 1993).

It is clear that an increase in age enhances the influence of friends. Krosnick and Judd (1982) reported that peers and parents are equally influential on smoking behaviours at the age of 11, while at the age of 14 friends are more influential. Such increase in the influences of friends during the older age group may also be attributable largely to the biological changes triggered by puberty as adolescents try to form their own social identity. Such a shift from parent to peer influence is a normal part of the development process; however, it may also be the time during which parents are least able to prevent smoking behaviours in their children. During a qualitative study (cited in Walsh and Tzelepis 2007) by Amos and Bostock, (2007) peers was the main theme when 16-18 year olds respondents recounted experiences of smoking initiation and relapse. Those respondents who were unable to stop smoking had a large percentage of regularly smoking friends.

According to the data collected through a cross sectional regression analysis from 13 and 14 year olds, the European Smoking Framework Approach Study (in UK, Portugal, Denmark, Netherlands, Spain and Finland) found a significant correlation between friends and adolescent smoking behaviours in the UK (and the rest of the countries), while the association of the behaviours with best friends was even higher than with parental smoking (De Vries et al 2003). Conversely, after 12 months the longitudinal study repeated in Denmark, the Netherlands, Finland and UK found non-significant relationship to peers smoking (De Vries et al 2006)). The recent European School Survey Project on Alcohol and Other Drugs (ESPAD) research study from Eastern Europe and the UK with samples of 16 year olds, found that respondent's smoking was highly associated with peer smoking (Kokkevi et al 2007). One issue with this research however is that it cannot be concluded that association with smokers is what causes smoking behavior in the individual. It may instead be that adolescents who do smoke are selecting friendship groups which support this behaviour.

A qualitative review by Fry et al (2008) noted that smoking is often used by adolescents as a shared activity when they are in new social situations and have to form new social bonds. Similar research in Scotland also has found that smoking is used as a social tool to make new friends, especially at times of transition such as starting at a new school or in a new job (Wiltshire et al 2005). The Liverpool Longitudinal Study on smoking with 12-16 year old children from secondary schools, found that peers were often the driving factor of cigarette smoking initiation (Woods et al 2008). After exploring the role of peer groups, the researcher concluded that though the respondents believed that they

smoked in order to portray an image to peers the behaviour actually stemmed from personal factors (Woods et al 2008).

Stewart-Knox et al (2005) conducted a qualitative study with 13 and 14 year old respondents from economically disadvantaged areas throughout Northern Ireland. The researcher found conformity and social identity within peer groups were strong predicators of smoking uptake. The associations of smoking trends with early adolescent dating were examined by Fidler and colleagues (2006b) for five years in South London with 11-12 year olds, as part of the Health and Behaviour in Teenagers Study (HABITS). The researcher found a strong relationship between dating at a younger age (between 11 and 12) and smoking predictions at later years (up to five years) even when controlling for other correlates of smoking such as puberty and peer smoking. The finding was significant for both males and females. It was also evident that a follow-up for those who smoked was more likely to have a partner who also smoked (Fidler et al 2006b).

Self-Esteem

Quality of family relations can have a strong influence on self-esteem (Hughes and Demo, 1989). Similarly, family cohesion has significant effects on changes in adolescent self-esteem (Baldwin and Hoffmann, 2002). Self-esteem and family functioning are positively correlated with relatively greater effect in girls compared to boys (Mandara and Murray, 2000). This suggests that females may have different motivations to initiate and maintain a smoking habit. The National Center for Addiction and Substance Abuse (2003) have reported that females appear to become addicted to nicotine more quickly than males. Similarly, they are more likely to be influenced by

pressure or substances use by family members as compared to boys (Chassin et al, 1992).

Adolescents whose family challenged them to do their best, and encouraged autonomy and self-discipline have higher self-esteem (Schmidt and Padilla, 2003). Having a greater sense of autonomy may also protect adolescents from smoking risks by making them less susceptible to the types of peer pressure discussed above. Self-esteem and sense of mastery are enhanced by a positive family environment, while high parental support and parental monitoring are related to greater self-esteem and lower risky behaviors (Parker and Benson, 2004).

The association between self-esteem, smoking and peer grouping was analyzed by a study in which data was collected in 1996 from a Scottish rural sample and as part of the Scottish National Survey, with respondents aged 13 -14 (Glendinning &Inglis 1999). This study found some inconsistent results in comparison to the existing literature regarding self-esteem and smoking behaviour. Among 13 to 14 year olds, low levels of smoking and self-esteem were reported among those who were categorized as socially isolated. Similarly those respondents categorized as being peer orientated reported high levels of smoking and self-esteem. However, those in the mid-point between these two ends of the spectrum reported low levels of smoking but high levels of self-esteem. The results may be a reflection of the interactions between these different factors. It could be that high social contact increases self-esteem, but that it also exposes the individual to more social influences to smoke.

Previous research has also suggested that the relationship between self-esteem and smoking may be a complex one. An analysis of longitudinal data from the British

Household Panel Study found that general self-esteem at ages 12-14 years was linked to smoking experimentation and smoking in the following few years (Glendinning 2002). However, there was a less strong association between self-esteem in early adolescence and smoking in later adolescence (19-20 years old). The author argued that this was partly due to contextual factors, specifically the peer group context, and the meanings that smoking has for different peer groups.

Other substance use: Alcohol, cannabis and other drugs

Adolescent smoking is an early warning sign for additional substance abuse problems. According to the US Department of Health and Human Services (1999), youths aged 12-17 who smoke are more than 11 times as likely to use illicit drugs and 16 times as likely to drink heavily as youths who do not smoke. Similarly, in addition to more frequent use of illicit drugs, young adults who consistently smoke throughout adolescence are at significantly greater risk for marijuana and other drug abuse or dependence (Vega and Gil, 2005). Several studies such as, Chassin et al (1993): Dawson (2000) but not others (e.g. Blackson and Tarter, 1994) have linked parental alcohol and substance use to adolescent initiation of alcohol use. Some studies (Wallace et al, 1999: Williams and Smith, 1993) have also identified disruption of family structure and social networks that use alcohol as a risk factor for initiation of alcohol use.

The relationship between alcohol, other drug use and smoking has been examined in the UK in several studies. According to Fuller (2008), the 2008 Smoking, Drinking and Drug Use survey found that among 15 year olds two-thirds of those smokers who

smoked in a previous week had also drunk alcohol, compared to a third of non-smokers. The association of smoking with other drug use was even stronger, with over 53% of those previous week smokers having also taken drugs, compared to 8% of those who had not smoked. An English study conducted by Rodham et al (2005) with 15 to 16 year olds recorded a significant overlap between alcohol, cigarette and drug consumption, in which from all 59% reported such behaviours, 3.7% reported smoking, 3.5% drug taking and smoking, 2.3% reported smoking and 14.2% reported all three. The data collected from the 1998 and 1999 European Smoking Prevention Framework Approach (EFSA) shows that smoking and alcohol were reciprocally associated with each other. Similarly, the study also found that alcohol use was subsequently predicted by smoking behaviour across the 6 European countries including Finland, Spain, Denmark, Portugal, Holland and the UK (Wetzel's et al 2003). According to McCambridge and Strang (2005a) the data from young drug users in London shows how cigarette smoking at an initial age was an important predictor of the age of first using cannabis.

In another study, Amos et al (2004) conducted a qualitative review of cannabis and tobacco use in young people in 1999 after collecting data from research with 15 to 16 year old and 16 to 19 year old smokers in Scotland. For some smokers in their mid- to late-teens, cannabis use and smoking were linked in significant ways. For example, Amos et al found that regular cannabis use appears to reinforce cigarette use while reducing the chance of cessation. Most young people in the study reported their intention to quit smoking while a few planned that they would stop using cannabis; cannabis and smoking mutually were related to cigarette smoking (Amos et al 2004). The same results were found in a series of Scottish evaluative studies called Pilot Youth

Cessation projects. The use of both tobacco and cannabis remains an issue for many smoking cessation projects (Platt et al, 2006).

Risky behaviours such as substance misuse, smoking, unsafe sex, lack of physical activity and unhealthy eating habits often occur in clusters in young people, particularly in areas of deprivation where there may be less access to healthcare (Currie et al 2008). Viner et al (2006) also found that the co-occurrence of drug use, drinking and smoking was less common among Bangladeshi, Black British, Black African, Indian and Pakistani children compared to Caucasian young British people, when controlling for gender, socioeconomic status and age. A number of qualitative research studies have found that throughout adolescence higher consumption of tobacco is reported to be associated with alcohol drinking among younger smokers (Amos et al, 2006)

Educational attainment, aspirations and engagement

As tested in the Social Development Model strong school engagement acts as a protective factor against the risky and deviant behaviours of adolescence (Catalano & Hawkins, 1996; Hawkins, et al, 2001). The relationship between individual smoking and educational level was mostly explored in conjunction with socioeconomic status. However, Allison's (1992) survey conducted among Canadian high school children found that the smoking level in lower performing students was higher than those from advanced and or better performing students. A study conducted in eleven European countries by Nut Beam and Aaro in 1991 examined the relationship between actual smoking status and children's attitude to school and found that self-reported smoking was higher among those pupils who dislike school. Similarly, less educational

attainment, school disengagement and low intelligence were all found to be associated with increases in smoking. Although adolescent smoking is a well-known correlate to school failure and reduced educational attainment and low performance (as discussed above), it is unclear whether this relationship is causal or spurious. For example, such relationships may also be partially due to risk factors such as socioeconomic disadvantages.

The 2002 English survey cohort of the Health Behaviour in School-age Children (HBSC) collected data on social support in school. Data from 7, 9 and 11 year olds shows that the smoking level was higher (29%) among those children who could not get the help which they need in school, as compared to 15% smoking prevalence among those students who could get help (Morgan et al 2006). Similarly almost the same figures (28% and 15% respectively) were recorded for those students who could not get help from their parents when needed. As with previous research, it was noted that students with a higher sense of belonging at school had a lower rate of smoking (Morgan et al 2006).

Research has also been conducted on young people with disabilities. The 1999 Office of National Statistics survey of the mental health of children and adolescents in Great Britain (Meltzer et al 2000 as cited by Emerson & Turnbull 2005) included 4,164 respondents aged between 11-15 years along with their primary carers. The research concluded that a large percentage of young people in the sub-sample had been living in poverty compared to those from the non-intellectually disabled group. Adolescents with intellectual disabilities had higher self-reported current smoking rates. Among the sub samples of children with an intellectual disability, an association between current

smoking with poverty and psychiatric disorders (diagnosable) was found, (Emerson & Turnbull 2005). As with other topics the challenge with this research is to identify if the increased risk of smoking is directly caused by the issue intellectual disability, or if it simply because this group of participants are more likely to live in deprived areas.

Data from the 2007 English study on Smoking Drinking and Drug use among Young People concluded that pupils aged 11-15 years old that had been excluded from school were more likely to smoke at least one cigarette a week as compared to non-excluded pupils (Fuller 2008). The same results were found for those young pupils who were recorded absent from school. Similarly, the West Midlands school study found that low smoking prevalence in school is associated with a low truancy rate (Markham and colleagues, 2008).

In another study, Mayhew and colleagues (2000) attempted to classify transitional predicators in different stages of the development of smoking and noted that different studies show that low levels of expectation for achievement or less achievement in education, both were influential factors on the smoking behaviours of young people. The 2005-2006 Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS) found lower educational expectation and aspiration among regular smokers. Among 13 year olds, 24% of regular smokers reported their expectation to go for higher study as compared to 19% of 15 year olds, likewise for non-smokers the percentages were 50% and 49% respectively (Maxwell et al 2007).

Mass media

International research conducted by the US National Cancer Institute (NCI) as a part of their study on the mass media role on tobacco control, carried out a published review on the influences of tobacco promotion through internet, television, film, music and magazines on young people's smoking attitudes and behaviour (Davis et al 2008). The institute also reviewed the facts about the usefulness of mass media campaigns. From the review of cross sectional studies it was concluded that among 10-19 year olds smoking initiation was associated to smoking exposure in films (depending on the film star smoking status and occurrence or how many times cigarettes come into view on the screen).

Data from the two US longitudinal studies (as reviewed by Davies et al, 2008) with 10-17 year olds also noted that children who have been exposed to cigarette smoking in movies were twice as likely to become smokers themselves. It could also be argued that those movies that show smoking are more likely to be adult movies, and that those children with deviant behaviours are more likely to see movies, which are not appropriate for them. The experimental studies (taking samples from 7th grade students to college students and then to adults) found that different images of smoking in films influences the viewer's (adolescent) smoking belief, including functions and consequences, beliefs about personal intention and social norms about smoking. Moreover, the different content of films such as less representation of the consequences from smoking or the protagonist's smoking status, have been found to influence smoking intentions and behaviours. There was also some evidence that female young adults were especially influenced by the depiction of smoking by male

actors. The NCI review however did not take demographic factors into account (Davies et al 2008).

The link between adolescent smoking and depictions of smoking in American films is important because of the influence these have on British adolescents. The UK Film Council (2008) reported that 17 out of the 20 top films, which were released in the UK originated wholly or partially from the USA. In 2007, nearly half of the cinema audiences for these films were aged between 7 -24 year olds (UK Film Council, 2008). Research into smoking in cinema films with adolescents smoking are limited in the UK. One of the few studies which have been conducted found no connection between film viewing and smoking behaviour in a sample of 19 year olds (Hunt et al 2009).

According to Davis et al (2008) and Dewhirst (2008) extensive imagery of smoking is evident on internet sources. YouTube is the most researched social media site in the tobacco control field. Since 2007, eight research papers have been published examining tobacco content on YouTube. Tobacco imagery is 'prolific and accessible' on the site (Freeman and Chapman, 2007) and the dominance of pro-smoking over anti-smoking content has persisted over time (Forsyth and Malone, 2010). However, the NCI review of mass media and smoking found no evidence for a link between internet sites and smoking behaviours in adolescents (Davis et al 2008). Of course it should be acknowledged that this review pre-dated 2008 and the emergence of new social media technologies such as Facebook and Twitter. It would be of interest to examine the relationship between those internet sources and smoking behaviour. Facebook and Twitter can encourage young adults to smoke by providing them access to tobacco

products and offering content that glamorizes a smoking lifestyle and culture, particularly in hundreds of websites and chat rooms. Some examples taken from publically available Twitter feeds are shown below. The profile image, which accompanies these tweets, suggests the posters to be young adults, although in the interest of confidentiality these photographs are not reproduced here –

'I love drinking too much and socially smoking, don't wanna stop or learn to behave, amen, and hey I just missed another day again'

Female Twitter user

*'*Hollywood actor Brad Pitt has been smoking since he was in the sixth grade at school!'

Male Twitter user

From the NCI review two UK studies explored the way children engaged with different images of smoking within magazines and their effects. One study concluded that children rated images of cigarette smokers in magazines as wild, depressed and drugged-up while rating images without cigarettes as nice, rich, attractive and healthy, while in the other study children reported images in magazines as attractive and influential (Davis et al 2008).

Another influential mass media factor among children is smoking advertisements. Tobacco company advertisement campaigns have been a factor in increasing rates of smoking in adolescents, even if by law such companies are prohibited from targeting adolescents in these campaigns (Pierce et al, 1996). In the United States, various

longitudinal studies (Biener and Siegel 2000: Pierce et al, 1998, 2002;Sargent et al, 2000) concluded that those adolescents who were more receptive to smoking advertisements and promotions were more likely to become dependent on smoking.

In the UK, most of the tobacco promotion and advertisements were banned with the implementation of the Tobacco Advertising and Promotion Act 2002 (TAPA). In February 2003, the introduction of the law banned billboard advertisements, followed by bans on printed advertisements and direct marketing. Similarly, in December 2004 a ban on advertisements at the point of sale was enforced, which has reduced the maximum length of size of advertisements to be no more than that of a piece of A5 paper.

Stress

Stress is also a source of cigarette initiation in both males and females. However, research shows that young girls have reported more stressful situations than boys during their lives, which some researchers have argued may be a possible reason for the higher smoking prevalence rates among girls (Byrne et al., 1995). Smoking has been reported by study participants as a tool to pass time, prevent boredom, and to finish the day easily (Lloyd and Lucas,1998). The mechanism by which smoking reduces stress is not clear, although it is known that nicotine acts upon the neurotransmitters of the brain. Given the social aspect of smoking it is of course also possible that it is the act of socialization with others, which reduces stress.

According to the ‘Family Stress Model’ (Conger et al, 2000), the family contributes to emotional distress (e.g. depression) and family dysfunction. Family distress causes problems in the relationships between adults that are, in turn, linked to less effective parenting, which could lead to adolescent smoking. Within the family young people become stressed for many reasons. Some of these may be low socioeconomic status, injury or serious illness of family member, lack of parental attention, trouble with parents and trouble with brothers or sisters. Adolescents may respond to such stressful events in their lives by smoking initiation.

Conclusion

From the above discussion of the various factors contributing to adolescent smoking it can be concluded that some of the factors such as friends and parental smoking are perhaps the most studied and well-supported type of psychosocial influence on adolescent smoking as argued by (Flay et al., 1999). However, there is a need of theory based research which predicts and examines the influences of psychosocial factors on smoking behaviour trajectory. There is also a need for research that explores these processes specifically in a UK context.

Chapter 3 - Social theories and adolescent smoking

The evidence on the process of smoking initiation, quit attempts and various other smoking behaviours has been mostly collected from empirical research and national health surveys. In order to better synthesize and understand the body of research, theory based studies need to be conducted which could serve as a basis for smoking intervention and prevention. The importance of the social context of smoking is the concern of many researchers. In order to better facilitate and understand smoking behaviours, a range of factors related to social and cultural contexts have been proposed (Unger et al 2003). In this chapter, three of the major social theories are discussed, specifically Social Learning Theory, Primary Socialization Theory and Group Socialization Theory.

Social Learning Theory and adolescent smoking

Social Learning Theory has been used in previous research to explain smoking among young children (White et al, 2003). According to Albert Bandura, one of the pioneers of this research, children examine the behaviours of others through observation and subsequently follow or adopt behaviours. Children model parental smoking behaviours through observation and then eventually apply it to themselves (Bandura, 1986). Peers and parents are given more importance and are considered more influential in this model, while media and other indirect linked groups are secondary. The frequency and length of imitation or modeling depends on the amount of contact with others; children are more likely to imitate the behaviour of smokers or non-smokers with whom they

have more contact. As such, the model predicts that the smoking behaviour of parents will act as a strong determinant of child and adolescent smoking initiation.

It has been argued that once adolescents perceive smoking behaviours to be acceptable in society, they take it as a normative habit and then try emulating adult smoking behaviours (Tucker et al., 2003; Milton et al, 2008). Milton and his colleagues in a qualitative research study conducted in Britain, found that among 11 year old children they reported that smoking represented an adult status (Milton et al., 2008). Such assumptions are accepted by the Social Learning Theory in a way that parents of children serve as a role model for them.

Social Learning Theory posits that those relations that occur early in a child's life are more important than those relations which come later. It could be argued that therefore parents could be expected to be the most important source of continuous influence, as in many cases the peer network of the child will change and evolve as they age. These changes will be particularly pronounced during the transition from primary school to high school as the individual forges new peer networks. This theory in some ways therefore does not fit well with the research discussed in the previous chapter, which suggests that in late adolescence peers actually become a stronger source of social influence than parents or families.

The relationship between the individual, their families and their peers is further complicated by issues of reward and punishment. Social Learning Theory predicts that reward of a behaviour will act as a positive reinforcement, and that punishment will act as a negative reinforcement. However, for adolescents smoking may be a behaviour,

which is simultaneously punished by parents but rewarded by peers in the form of social approval. This conflict in the social learning process could in part account for the inconsistent results of studies into the most important sources of social influence in adolescents.

As commented the social learning process also applies to secondary sources. In a study examining adolescent smoking, Siegel et al (2008) compared smoking habits of American children in different towns with differing tobacco use legislation. It was found that strong legislation appeared to prevent smoking initiation in children as compared to areas with weaker regulation. This was argued by the researchers to be in part due to the fact that children in areas of strong legislation witnessed less people smoking in public, and were hence less likely to be prompted to smoke themselves through secondary social learning. Such sources of social influence are not necessarily limited to parents and peers. A study by Poulsen et al (2002) found that children in 48 Danish schools who had seen teachers smoking outside the school were more likely to do so themselves. The fact that teachers can also have an influence on students' behaviour could be an area of research which needs further investigation. The relationship between teachers smoking and adolescent smoking has rarely been studied in the research. Teachers may be often considered as substitute parents in some situations, particularly those cases where parent- child communication is poor.

Various questions could be addressed in future research which utilizes Social Learning Theory, such as how these processes operate through social media and new forms of technology. Furthermore, the theory is not necessarily easily applied to situations

outside that of the traditional family, such as reconstituted families with step-parents, where parental role models might not be so clearly defined.

Primary Socialization Theory and adolescent smoking

The assumption of the Primary Socialization Theory is similar to the Social Learning Theory. That is, children learn new behaviours by observing others and through direct modeling consequently trying it themselves (Bandura, 1977). This theory explains how children develop their attitudes, beliefs and behaviours through different socialization agents like peers, family and school (Oetting et al., 1998; Oetting & Donnermeyer, 1998; Catalano& Hawkins, 1996). According to this theory deviant behaviour including smoking is mostly learned through these primary socialization sources (Oetting &Donnermeyer, 1998). In contrast to the Social Learning Theory however, the Primary Socialization Theory also takes into account the importance of several personal traits, like self-esteem, anxiety and sensation seeking which have all been found to have indirect influences on substance use. The three major influential social agents that come under Primary Socialization Theory are peers, family and school.

The main concept in Primary Socialization Theory is bonding. The transmission of group norms depends on the strength of the bonding between social agents and individuals. If the bonds are stronger, the individual will be more likely to follow group norms and if they are weak, the individual will look for other primary social sources to which they have stronger bonds. This theory could then perhaps be argued to better reflect the evidence discussed previously, which suggests that sources of social influence are dynamic over the life phase of adolescence, shifting from parental influence in the early

years to peer influence in later adolescence. Another assumption of primary socialization theory is that peers are often the major catalyst for the development of deviant behaviours, particularly during adolescence. Findings from various sources (e.g. Avenevoli &Merikangas, 2003, Hawkins, et al, 2001, Kobus 2003) support this theory. Prior studies conducted on the basis of this theory have mainly focused on substance use among white, middle-class adolescents (e.g. Rai et al., 2003). However, it would be of particular interest to know whether adolescent relationships within the above primary socialization agents will vary by ethnicity/race. There is a need for further research to highlight such variances especially in an ethnic diverse country like the UK.

One of the limitations of the theory is that it generally speaks about the way social bonds contribute to the deviant or pro-social behaviours and their outcomes, but it does not stipulate the path between the behaviour, norms and social bonds.
In addition, the theory itself is quite general. It covers peers, family and school which itself are quite broad, e.g., the influences of all of these social agents on an individual's behaviour could be different. In terms of association between adolescent smoking and these three social agents, various studies have found different results.

Group Socialization Theory

Another social theory is the Group Socialization Theory, which was presented by Judith Rich Harris in 1995 (Harris, 1995). According to this theory, children try to learn different behaviours outside the family by connecting themselves to social groups.
This socialization of an individual with peer groups is the key point in Group Socialization theory. The theory also assumes that parents remain the primary social

agents for a child until age 5 or 6 and that parents are more influential than peers at this time. However, during the personality development process the influences of peer groups becomes stronger than parental influences (Harris, 1995). As discussed earlier numerous observational studies exist which demonstrate the influences of peers as risk factors to adolescent health. For example, cigarette smoking may be influenced by a single friend (Urberg, 1992) who can coerce other friends into alcohol and cigarette smoking (Urberg et al, 1997). Similar processes have been found with regards to illicit substance use (Maxwell, 2002).

According to the Group Socialization Theory peers become more influential than parents during personality development stages. However, this theory ignores some of the important parenting variables, which vary across ethnic groups, where parents remain more influential than peers. e.g, strict parenting in various ethnic groups may have no effect on certain children, while causing others to become either rebellious or compliant. As argued by Chao, 1994 that for Caucasians, “strictness” may be equated with negative characteristics such as parental hostility, aggression and dominance, but for Asians, “strictness” and some aspects of “control” may be equated with positive characteristics such as parental concern, caring or involvement.

There are also some gaps in terms of gender differences; it is not clear whether peer influences within social groups will be the same for both genders. Males and females growing up in the same home could reasonably be expected to have different experiences; hence, it is not necessarily the case that both genders will experience the same influences.

Comparison of the theories

The above three social theories provides a framework of knowledge which provides detail on how social process and certain factors can effect and influence adolescent behaviours, including smoking. One common feature among all these theories is the importance of their primary connection. If a youth is constantly in contact with a smoker he will be more likely to smoke, while if he is in contact with a non-smoker he will be unlikely to be engaged in smoking behaviours.

Each theory offers unique contributions to the understanding of social influences on behaviour. Social Learning theory (Bandura, 1977) considers social processes and modeling as influential on adolescent smoking behaviours. The research findings discussed in chapter two provides evidence to support the association between adolescent tobacco use and this theory, e.g: parental own smoking contributes to adolescent smoking (Avenevoli & Merikangas., 2003: Hill et al., 2005). Research also supports the argument that if children's exposure to parental smoking is greater the child will be more likely to smoke (Den ExterBlokland et al 2004: Farkas et al., 1999). In addition it has also been found that the chances of child smoking initiation increases if the number of role models increases (Peterson et al, 2006).

Studies based on the Primary Socialization theory report peers, family and school as the main source of influence on adolescent smoking behaviours. Research in the literature provides support for this theory. Both longitudinal (Murray et al, 1983: Chassin et al, 1986) and cross sectional (Aitken, 1980: Melby et al, 1993) studies have reported

that peers can affect the present and future behaviours of adolescent smoking. The importance of school in influencing adolescent smoking behaviours was reported by Allinson (1992), who found that various measures of school are associated with adolescent smoking. The Social Development Model by Catlano & Hawkins, (1996) has also highlighted the importance of school in young people's smoking behaviours.

Social Learning Theory could be argued to be considered the most universal of the three theories as it focuses on parental modeling, which is a process common to all cultures. It also fits well with the existing aforementioned research on positive and negative reward. From the above discussion of various social theories, it is clear that each theory offers an individual explanation of specific factors related to adolescent smoking. These theories however support one of the most consistent findings in the literature, which are the influences of family and peers on adolescent smoking. Still it could be argued that neither of these theories focuses on the potential importance of parental cessation.

However, due to the complex nature of adolescent smoking and the influences affecting it, it is important to consider individual, social, biological, physiological and environmental factors in the development of a model of acquisition.

Chapter 4 - Societal Level Policies to reduce adolescent smoking

The policies regarding tobacco control have evolved over time, and have often been instigated as a result of changes in strategies by the tobacco industry. Over the past two decades a number of tobacco control policies have been adopted which aim to prevent smoking initiation and encourage cessation among adolescents. The most important among these include smoke free air laws, access laws (e.g., sales to minors), purchase laws and cigarette tax increases law (Warner et al, 2003).

This chapter reviews the importance of various measures that could lead to reduced levels of smoking and the associated environmental harms discussed in chapter one.

Social attitudes, norms and behaviours

It is has been argued in the tobacco control literature that reducing adult smoking prevalence through cessation will also result in reductions in smoking prevalence in young people, for example in the recent report 'Beyond Smoking Kills' (Action on Smoking and Health, 2008). However, whilst there are several studies which suggest a link between adult and child smoking (as discussed in chapter two) there is a lack of research to date which has demonstrated that a change to adult smoking behaviours will in turn directly reduce levels of child smoking behaviour.

There has been some research that suggests that such an affect may be possible. A longitudinal study in Massachusetts in the US, explored the impact of banning smoking in local restaurants on the progression to established smoking among 12-17 year olds (Siegal et al 2005). The study found that those children living in cities where strong

regulation on smoking existed had less than half the chance of being a regular smoker compared to children in cities with weak regulation. While adult smoking prevalence rates did not decline over this period, adult smokers in cities with strong regulation saw a threefold increase in the odds of making an attempt to quit (Albers et al 2007). There was also a reinforcement of anti-smoking norms among adult smokers, who already regarded smoking in restaurants and bars as socially unacceptable.

Questions can be raised with regard to its efficacy in specific and general population particularly among ethnic diverse areas. Because of the differences in health behaviors within and among various ethnic groups, it could be useful to carry out research on smoking behaviours across various ethnic groups. Similarly, the point whether the social norm approach – in which the actual smoking rates of a population are advertised to that population - can be used as a part of other program or should be used as itself is not clear.

Changing access

From a Cochrane systematic review assessing the effects of interventions to reduce underage access to tobacco by deterring shopkeepers from making illegal sales, Stead & Lancaster (2008) concluded that, informing retailers about their legal obligations was less effective than multi-component education strategies, active enforcement or a combination of these. None of these methods achieved complete, prolonged compliance and from three controlled trials, there was no clear effect on young smoker's perceptions of ease of access to tobacco or on smoking prevalence.

A recent review evaluating future prospects for policies reducing tobacco use in the USA looked at the evidence on supply-side strategies and concluded that the efficacy of proactive retailer compliance activities on youth access and smoking prevalence had yet to be firmly established, but should be part of a comprehensive package of preventive initiatives (Rabin 2007). Similarly, a review by the National Institute for Health and Clinical Excellence (NICE 2008a) aiming to know whether points of sale interventions deter shopkeepers from making illegal sales and uptake by young people. The evidence included a review of effectiveness (Richardson et al 2007) and qualitative research (Wool fall et al 2008, NICE 2008b). The literature review examined the effectiveness of interventions designed to prevent the illegal sale of tobacco to children and young people, and included studies published up to mid-2007. From the included literature, there was evidence that "access restriction interventions impact effectiveness in terms of the number of sales to young people, young people's ability to access cigarettes and merchant compliance" (Richardson et al 2007).

The reviewers found a paucity of information on whether interventions impacted on attitude, behaviours, intention beliefs, or perceptions; only two studies addressed the impact on young people's smoking behaviour. The elements which demonstrate an influence on number of sales, ability to access cigarettes and retailer compliance include active enforcement, comprehensive interventions, interventions produced by tobacco control bodies and requesting age/proof of ID. A number of factors were found to moderate the success of these techniques, specifically demographics of the vendor/merchant, site setting of the access intervention, and the demographics of the target audience. The above elements worked best when combined with other youth

prevention strategies. Only one of the studies reviewed was conducted in the UK, most were from the USA; however, similarities in how and where youths acquired cigarettes indicated that some of the findings might be applicable to the UK (Richardson et al 2007).

The NICE guidelines, developed from the review and other evidence, recommended that the government should better support enforcement of existing legislation and ensure that enforcement efforts are sustained over a number of years; local authorities and trading standards bodies should ensure that retailers are aware of legislation prohibiting under-age tobacco sales and make it as difficult as possible for young people (under 18 years) to get tobacco products (ensuring vending machines owners take reasonable precautions to prevent underage sales and give practical advice on how to do this); work with other agencies to identify problem areas; improve inspections and enforcement activities; assess whether a supporting advocacy campaign is required; discourage use of campaigns developed by the tobacco industry; and ensure all efforts are sustained (NICE 2008a).

Main and colleagues' (2008) systematic review of six systematic reviews on youth access shared two-thirds of its included reviews with Richardson and colleagues' data set and concurred with their findings. There was no evidence to indicate whether the effects of interventions on restricting young people's access to tobacco products varied according to age, sex, ethnicity or socio-economic characteristics (Main et al 2008). The qualitative research strand of the NICE guidance development with 11 to 17 year olds in England explored young people's knowledge of the recent change in law concerning purchasing age restrictions, and how they and their peers might circumvent it to obtain

tobacco (Woolfall et al 2008). (The legal minimum age at which tobacco can be bought in England and Wales changed from 16 to 18 years on October 1st 2007, and the focus groups were conducted from October to December 2007). As the quantitative data shows, young people could procure cigarettes from a wide variety of sources, including buying them online with minimum information checking by retailers. Proof of age schemes would not be effective in this situation or for young people purchasing contraband or illegally imported cigarettes and most respondents did not feel that the change in law for purchase age had, or would result in the prevention or cessation of smoking in under 18 year olds (Woolfall et al 2008).

A review by Ribisl and colleagues (2007) looked at the evidence on youth access to cigarettes via the internet, from a US perspective. Several studies reviewed suggested that most internet cigarette vendors sold to buyers without verifying age. However, the evidence suggested that few teenagers were buying cigarettes online in the US (Ribisl et al 2007). As the reviewers pointed out, those that were buying online reported greater difficulty in obtaining cigarettes from retail outlets suggesting that if retail access becomes sufficiently restrictive, more young people might use the internet to obtain cigarettes. With the further changes that have taken place in tobacco retail laws in the UK in recent years, it would be of interest to conduct similar research in the UK to see if a similar pattern is evident. A more up to date study would also better reflect the current trends in internet shopping, given that the work by Ribisl was conducted in 2007. Of the four potential strategies internet retailers could use to reduce sales to minors (the posting of minimum age-of-sale warnings, the posting of health warnings, use of parental control filter information and age verification), most could be circumvented, and

age verification at point of delivery was not offered by most postal delivery services, at least in the USA (Ribisl et al 2007).

The recent UK systematic review on the effects of prices on the cigarette smoking behaviour and the impact of prices on cigarette smoking in young people aged 25 years or under concludes that overall, price is likely to be an effective economic instrument in reducing cigarette smoking among young people (Godfrey et al 2009). Examining smoking initiation and cessation outcomes, the reviewers found that the price was effective in deterring young people from starting to smoke (one study found greater price elasticity for those under 18 years compared with those aged over 18 years), and was effective in encouraging young people to quit, but the effect was more moderate in terms of encouraging sustained cessation. However, it is not clear whether an increase in cigarette prices would have the same impact on the smoking behaviours of long-term smokers/heavy smokers.

The review authors note that most of the evidence base is North American and the relative costs of cigarettes are higher in the UK (Godfrey et al 2009). It should be noted that illicit cigarette sales and smuggling can undermine the positive effects of taxation and increase in prices, which in turn can lead to particular implications for health inequalities (including smoking). A report by (HM Revenue and Customs, 2006) shows that illicit and cheap cigarettes in the market greatly affects tobacco control measures.

Mass media

The National Cancer Institute in 2008 systematically reviewed the potential use of mass media campaigns in reducing tobacco use (Davis et al 2008). Studies amassed for the

reviews were very varied in terms of purpose and methodology, and these limitations present interpretation problems; however, the majority of studies suggested that the role of mass media in reducing tobacco use can be effective.

In terms of young people, the evidence from controlled field experiments suggests that mass media campaigns, when conducted in conjunction with school or community-based interventions, can bring positive effects in reducing smoking initiation. However, results from population based studies suggest that mass media campaigns, as part of multi component campaigns, can reduce rates of smoking in adolescents, although it is difficult to determine whether it was the program components working together that reduced prevalence, or single components. The few population based studies, where the mass media campaign is the only program, have demonstrated a reduction in smoking for youth target populations (Davis et al 2008).

The second part of the National Institute for Health and Clinical Excellence (NICE 2008a) review and the subsequent guidelines reported above, evaluated whether mass media interventions using a variety of channels to reach large numbers of people without relying on face-to-face contact, prevent the uptake of smoking by children and young people. Based on the evidence collected, NICE made the following recommendations. In order to prevent smoking uptake among children under 18, regional, local and national mass media campaigns should be developed but not in conjunction with the tobacco industry. While messages should be based on research, and pre- and post-testing with the target audience, with messages repeated in a number of ways and updated regularly. Strategies to reduce the attractiveness of tobacco and

change smoking norms should be included and exploiting the full range of media used by children and young people; and campaigns should run for 3 to 5 years (NICE 2008a).

The aforementioned review by Richardson and colleagues (2007) review also comprehensively reviewed the literature regarding the influences of mass media campaigns on the smoking uptake of young people and children for the NICE guidance development, and included studies published up to mid-2007. The reviewers found that mass media interventions can influence adolescent and child smoking behaviours, attitudes and beliefs and can prevent smoking uptake among them. Particular factors shown to influence effectiveness in terms of attitudes, perceptions, beliefs and intentions include message source, content, format and framing; duration; the target audience and their demographics; and the site or setting of the campaign. Those factors shown to influence effectiveness in terms of smoking behaviours include message content; the target audience and their demographics; duration of campaign; the number of anti-tobacco message sources; and the TRUTH campaign (Farrelly et al 2009 (published since Richardson and colleagues' review), 2005).

These factors are most effective with a combination of various tobacco control measures adopted by tobacco control bodies. The final conclusion drawn from the literature is that campaigns are most successful when they are long-lasting with a high intensity of exposure (Richardson et al 2007). As these studies were mostly reviewed in the United States it is unclear whether such outcomes will be directly applicable to the UK, though it was concluded that the generic factors listed are likely to be transferable (Richardson et al 2007).

A review of material on youth tobacco use prevention campaigns from nine countries including Australia, Canada, England, Finland, the Netherlands, Norway, Poland, Scotland and the United States (Schar et al 2006) drew similar conclusions. In general, campaigns were mostly effective as a part of a broader tobacco control program, especially when they included adverts with strong negative emotional appeals and introduced new persuasive information on health risks (Schar et al 2006).

Schar and his colleagues also found that the effectiveness of the campaign also depends on a broad number of message sources, sustained exposure over a significant time period and incorporate comprehensive format and process and outcome evaluation plans (Schar et al 2006). These findings also build on the results of the earlier Slater's (2007b) analysis of media campaigns for the Institute of Medicine.

A review of 19 internet and computer-based interventions (Walters et al 2006) included four studies of interventions aimed at adolescents, with the goal of delaying smoking onset amongst never or experimental smokers and/or or encouraging cessation amongst regular smokers. Of the four, two studies reported a significant reduction in smoking initiation and prevalence as a result of computer tailored material being sent to the adolescent's homes. In other words, the student is assessed by a survey and a series of messages are generated by the software based on some characteristic of the individual (e.g. their beliefs, efficacy and intention to smoke), printed out and sent to them ("second generation" programs). The two interventions, which did not have a significant impact, including Aveyard and colleague's (2001) intervention in West Midlands schools, are described by the reviewers as "third generation" interventions,

where the user's response to the program components may be deleted, rearranged or added. (Walters et al 2006).

The NCI review studied the entertainment media role in discouraging tobacco use and found evidence from two experimental studies with adolescents in the USA and Australia, that screening anti-tobacco advertisements before films can partially counteract the impact of tobacco portrayals in films (Davis et al 2008).

An anti-smoking mass media campaign called 'Help – For a Life without Tobacco' has been running Europe-wide (including in the UK) since 2005. Funded by the European Commission, the campaigns have been the subject of both developmental and extensive post campaign evaluation research (Hastings et al 2008b). Campaign awareness has grown steadily and reached 60% among people under 25s. It has successfully raised contentious tobacco control issues, for example smoke free public places. Television advertising drives traffic to the Help website, considered a trusted and reliable source of antismoking information and nearly 100,000 smokers have signed up for cessation coaching by email and it successfully encouraged populations to "think responsibly" about smoking, an important step towards quitting (Hastings et al 2008b, Hassan et al 2007).

There is a growing need for focusing on anti -smoking messages and a motivation /informational campaign. The government should focus on the increasing and sustained investment in social marketing and media education campaigns and should give priority to adolescent specific programs.

In light of the evidence discussed in previous chapters it could also be argued that mass media health education campaigns should take into account parental and family factors of adolescent smoking. For instance, it may be productive for campaigns to encourage conversations about smoking between parents and their children, to develop the type of positive parent-child communication which appears to have a protective effect. An alternative approach would be to highlight to parents that smoking themselves may not only harm the health of their children through second hand smoke, but that it may also increase the likelihood of them smoking themselves in adolescence and adulthood. Overall it could be argued that the above strategies have failed to take family factors into account, despite the evidence for the importance of these.

New media

As discussed in Chapter 2, forms of new media can act as a conduit for social influences on smoking behaviour. However, it can also potentially be used for intervention and prevention. New media includes electronic forms of communication methods such as email, mobile phone text, photo and video messaging, and the internet, encompassing examples such as social networking websites, photo and video sharing websites, and downloadable podcasts. Research by Ofcom in 2007 on ownership of key media in households from a weighted sample of 2,368 8-15 year olds and their parents in the UK, found that 71% of 8-11 year olds and 77% of 12-17 year olds had use of the internet at home and 79% of 8-11 year olds and 93% 12-17 year olds had use of mobile phones (Ofcom 2008), access to which could be expected to at least in part managed by parents. Internet access in the home was markedly different

when analyzed by socioeconomic groups; 86% of high income households had internet access, compared with 63% of low income households.

However, out-of-home internet use (such as in schools or at a friend's or relative's home) was high (89%) for children (ages 8-15 years) from low income households, and 31% of C2DE children accessed the internet only outside their homes (Ofcom 2008). Nevertheless home internet use is an area that parents have a degree of control over, and therefore there is potential for parents to check whether their children are visiting sites which directly or indirectly promote cigarette use.

Richardson and colleagues' (2007) review for NICE, in which mass media interventions are effective in preventing children and young people from becoming smokers. It highlights the lack of published evidence on the effectiveness of new media. Instead, the review draws on expert opinion, noting that new media has a fragmented and fast-changing nature, interventions should be developed in collaboration with young people and new media can be used to reinforce other mass media but their message may be lost if used alone (Richardson et al 2007).

No studies of prevention effectiveness were located in this literature search but there is some evidence of awareness-raising. In addition to the European Commission's 'Help – For a Life Without Tobacco' campaign, discussed in the previous section, which uses websites and other web elements as part of its mass media campaign, the American Legacy Foundation's Truth campaign more recently focused on a lower budget internet based 'viral' campaign, "Infect Truth", to pass on key campaign messages and create a "network of truth advocates" through befriending on social network sites (New York

American Marketing Association, 2008). The campaign's success was measured by tracking the peer-to-peer 'infection' emails and the subsequent traffic to the Truth website by following the link contained in those emails, in addition to the number of people adding Truth as a friend within their social networking profile and leaving comments. The numbers far exceeded the marketing agency's goal and expectations (New York American Marketing Association 2008). As previously discussed in chapter 2, it is important to mention here that within the last three years Facebook and Twitter have become even more popular than other social media. Antismoking campaigns for young people could achieve more positive results as smoking related topics can easily be discussed on these two sources. The use of 'positive' messages that many young people do not smoke could serve as a starting point for improving productive parent-child communication on the issue, which as previously noted can act as a protective factor.

Incentives

In a 2006 review Kavanagh et al collected evidence for incentive schemes in order to encourage positive social and health related behaviours in children aged between 11-19, within health, educational and community contexts including studies published up to 2005. Sixteen outcome evaluations were judged by the reviewers to be methodologically well-founded and three were found to be effective for delaying the onset or reducing the prevalence of smoking in young people. Of these three, one incentivized professionals and the others incentivized young people themselves. The intervention scheme which paid US$0.50 to orthodontists for every anti-tobacco

‘prescription’ they gave to an adolescent patient, showed no positive effect at follow-up, but the analysis showed that incentive schemes are effective in reducing smoking behaviours in the context of school-based competitions.

The reviewers noted that these findings are based on a small number of non-UK studies, and the two class competition studies relied on self-reported smoking behaviour, but the positive findings are consistent with other systematic reviews of incentives in the health domain (Kavanagh et al 2006). It could be argued that incentive schemes can be more effective for those adolescents who might find it easier not to start smoking compared to the more complex task of quitting once addicted to nicotine. Due to inconsistencies in the literature and a lack of evidence to support the incentive program this is an area worthy of further investigation. Incentive programs can also bring positive long-term results if parents are involved, where parent child communication could be crucial in such programs.

Tobacco marketing

The impact of mass media advertising and a vast array of marketing communications on young people’s smoking has been well established, and this evidence base led to a comprehensive ban being imposed in the UK. Furthermore, evaluation of the ban shows that it is beginning to reduce young people’s awareness of tobacco marketing and branding, as well as their susceptibility to smoking (Moodie et al 2008), research which is discussed in more detail below. However, two sources of brand and product information persisted after the ban’s implementation: POS display and packaging. The former has been researched more thoroughly than the latter.

Point of Sale (PoS) Marketing

As tobacco marketing is largely banned in the UK, tobacco companies mostly rely on displays at the point of sale in order to stimulate and attract customers, an example of which is shown overleaf in Figure 4.1.

The effects of points of sale on young people's smoking have been shown by several researchers. In 2006, the Centre for Tobacco Control Research UK concluded that nearly 50% of teenagers know about displays of tobacco product at points of sale, while relationships between intentions to smoke and displays at the POS were recorded (intentions to smoke were recorded among those who had seen the brand on the point of sale).Research conducted in the USA (Henriksen et al, 2003) and Australia (Wakefield et al, 2006) also show the same results as the studies and described that displays at POS lead to generate perceptions about easy access to tobacco.

Figure 4.1. Point of sale tobacco marketing in a newsagent

Another way through which various tobacco companies get success in increasing tobacco exposure at points of sale, is the development of existing brands to new varieties. For example, in 10 years (1998-2008) Benson & Hedges has increased the number of different brands from 2 to 12 (Action on Smoking and Health, 2008).

Plain packaging

Plain packaging, which is sometimes called standardized, homogeneous or generic packaging refers to such packaging having no promotional features with a standardized pack including the original color of the packet. Tobacco packages and brands have been given different meanings in relation to status, freedom, luxury and femininity and masculinity (Scheffels, 2008). The identity of a brand is conveyed by tobacco packaging through colors, pictures, fonts, symbols and pack shapes.

In North America, research highlighted how children use cigarette brands to appear smart, fashionable and popular (Rootman and Flay 1995). The color scheme and design of the packet also diverts the attention of the customer from health related warnings (Beede and Lawson 1992, Goldberg et al 1999). Certain tobacco brands integrate health warnings with the design and color of the packet, which could be argued to be an attempt to make the warnings less obvious.

Tobacco vending machines

The sale of tobacco from vending machines is now prohibited across England. (Department of Health, 2011). The ban was introduced to prevent under-age sales to children and to support adults who are trying to quit. This policy was a part of the 2009 Health Act, which included a number of measures for tobacco control following public

consultation (Department of Health 2008). Previously a voluntary agreement existed between the manufacturers of vending machines and managers of sites where vending machines were located. According to this non-official agreement the vending machines should be visible to staff and should be placed in an area where children have no access to them.

However, despite the agreement it was evident that children were able to access tobacco vending machines. As discussed in chapter 1, the 2006 Smoking, Drinking and Drug Use survey among young people in England, shows that among 11-15 year old children, 17% reported vending machines as their source of obtaining cigarettes, which according to the British Heart Foundation means that during the year 2006, nearly 46,000 young regular smokers from England and Wales aged between 11 and 15 years were successful in obtaining cigarettes from vending machines (British Heart Foundation, 2008).

The sale of tobacco products from vending machines has been banned in 22 European countries (World Health Organization, 2007). Imposing bans on vending machines in the UK could reduce the access of children to tobacco products and would bring the country in line with other European nations. Some tobacco companies argued for the use of ID cards or tokens requiring proof of age in order to prevent the under-age sale from tobacco machines. However, such measures do not seem to be an effective constraint against under age selling. In many cases, it would be possible to circumvent the safe guards used by the machines by simply obtaining an identity card from someone who is old enough to use the machine. Despite these issues, such machines have become popular in Japan, an example of which is shown in Figure 4.2.

It should be noted however that the Information Centre for Health and Social Care has suggested that these vending machines could be used in the UK for selling products such as nicotine replacement patches and gum (National Health Service, 2007).

Figure 4.2. Self-service cigarette machine in Japan accessed with use of a proof of age identity card.

Chapter 5 - Research Design

Background and aims of the study

The question of whether family influence increases or decreases the risk of adolescent smoking initiation and continuation is complex. In the UK, in particular there is a lack of research on familial influences, especially studies focused on restriction or bans in private homes, with more attention being given to legislative measures and the role of mass media in adolescent smoking behaviour. Furthermore, there is a need for a greater understanding of the role of ethnicity, and how this relates to family structures, parental monitoring and adolescent smoking behaviours. The city of Bradford is one of the most ethnically diverse in the UK, and as such provided a unique opportunity to examine effects of ethnicity in a diverse setting.

The study was therefore designed to address some of these issues through data collection from an adolescent population between ages 16-19 on the topic of smoking behaviour and family factors, with an emphasis on the home environment and family structure. This age group was chosen in light of the aforementioned research of the role of image in smoking behaviours and health consequences. As the evidence from previous studies demonstrates, those young people who do not smoke before the age of 20 are significantly less likely to start as adults (Centers for Disease Control and Prevention, 2009). Similarly, it has been shown that people taking up smoking at a younger age have double the risk of certain diseases than those starting at the age of 20 or later (Peto R, et al, 2000).

A number of alternative research design options were available. An experimental approach was deemed to be ethically and logistically challenging, given the nature of the research topic, and so an observational approach was chosen. This would have ideally been done longitudinally by tracking respondents across several time points, which would have allowed for more causal relationships to be inferred. However the nature of the study period available meant that this was not possible. A cross-sectional design was used instead, the limitations of which are acknowledged and discussed in greater depth later in the thesis.

In keeping with the literature discussed in previous chapters it was decided that in addition to familial influences there were several additional factors which should be included in the study, specifically age, ethnicity, income and source of cigarettes. These factors were chosen as each of them could feasibly be related to family structure. For instance, both income and access to cigarettes in young adults could be in part determined by financial support from parents and the provision of cigarettes from older siblings.

Whilst a qualitative approach would have produced a more in-depth individual understanding of these processes, it would have required an unfeasibly large amount of data collection to cover all possible permutations of family structure and ethnic background. Qualitative approaches also often require a degree of face-to-face data collection between the researcher and the respondent. Previous research on substance use with young adults suggests that more accurate responses to studies of this type are obtained when the respondent feels that there is a degree of anonymity and confidentiality in the substance use information they provide (Kypri et al, 2004). Finally,

whilst as discussed in previous chapters there has been research on different aspects of family structure, income and tobacco availability there is a lack of research, which has examined these factors together, particularly in a UK context. As such an observational, survey based methodology was used to investigate these factors in an exploratory study which could be used the basis for future more in-depth research.

The choice of using a questionnaire and the items included was informed by the existing literature. Whilst many studies, in particular national surveys, have questioned adolescents about individual aspects such as family structure, source of obtaining cigarettes and home smoking bans there has been little research which has directly compared these factors in a single study. It was deemed therefore that a survey incorporating a range of items on the relevant factors identified by existing literature would be a useful first step in developing a broader understanding of the relative role of these factors.

Methods

Participants

The study was conducted in Bradford College. A total of 100 students completed the survey. Out of the 85 who reported their gender, 49 of the respondents were male and 36 were female. The sample primarily consisted of 16 – 19 year old students on FE courses.

Measures

A survey was constructed specifically for the research study. This included items on basic demographic factors such as age, gender and ethnicity. Respondents were also

asked to indicate their frequency of cigarette smoking, from ‘I have never tried smoking’ to ‘I usually smoke more than six cigarettes a week’. If respondents reported that they did not smoke then they were directed to skip ahead to the next relevant question. The purpose of this item was to assess smoking status. Given the young age of the target population the wording and response options of this item was designed to be simple and easily conceptualised, in a manner similar to the items used in aforementioned adolescent tobacco use surveys. A more complex survey of cigarette use could have been conducted; however the aim of the study was to examine family and social influences on adolescent cigarette use, not to chart adolescent cigarette use detail.

The survey was also anonymous. As discussed by Midanik (1988) respondents to substance use self-report surveys may provide more accurate information than could perhaps be expected, provided they feel confident that the information they are providing is anonymous and confidential. More information on how anonymity and confidentiality were communicated to the respondents is described under the Procedure section.

A number of additional items were included. Family structure was assessed through several items. Respondents were asked to indicate if they lives at home with both parents, a single parent, or a single parent and a step parent, or other guardians. They were also asked to report their number of young/ older sisters/ brothers and how many of these smoke themselves. Source of cigarettes was assessed using categorical response options based on previous research. In light of existing studies on socio-economic factors respondents were also asked to report if they were in employment and if not whether they received disposable income from their family members. Parental

attitudes towards peers (i.e. whether or not parents approved of the respondent's friends) was included to explore the interaction between parental and peer influences, as discussed in previous chapters.

Finally smoking in the home environment was measured by asking respondents who do smoke if they are allowed to smoke at home. In light of the aforementioned research on practices such as only smoking in certain rooms or outside a third response option was added that allowed respondents to indicate if they were allowed to smoke in the home but only in certain places.

A full copy of the measure used is given in the Appendix.

Procedure

Participants were recruited in one of the social spaces of the Student Union of Bradford College, following permission by the College and ethical approval from the University of Bradford. The researcher approached students and asked them if they would be willing to complete a short questionnaire on the topic of family and smoking. Participants were provided with an information sheet that contained information about the study and the contact details of the researcher.

Those participants who decided to take part were asked to sign a separate consent form by the researcher and were given a copy of the questionnaire. The researcher remained in the social area until questionnaires were completed by the respondents. The participants were invited to return their questionnaires to an open box rather than handing them directly to the researcher. This was done to emphasis to the respondents that the data was being collected anonymously. After collecting the questionnaires from

the participants the researcher handed them debriefing sheets that contained some extra information on the study as well as the contact details of the researcher.

Chapter 6 - Data analysis

Descriptive analysis was completed on all items of the survey. Inferential analysis was then conducted to determine if there were any effects of age, gender and various family structure items on numbers of cigarettes smoked by the adolescent.

Demographics

A total of 100 respondents completed the survey.Among these 85% reported their gender. Out of these 49 (58%) were male and 36 (42%) were female.The recorded smoking rate (i.e. the percentage of students who indicated that they currently smoke, defined as at least one cigarette a week) for males was 31% while for female respondents was 24%. A Mann-Whitney analysis was used to examine genders effects on frequency of smoking. No significant effects were found.

The mean age of the sample was 17.7 years with a standard deviation of 1.02 years. In light of the oridnal nature of the data a Spearman test of correlation was conducted between age and frequency of smoking. This was non-significant ($p > 0.05$).

Smoking status of the respondents

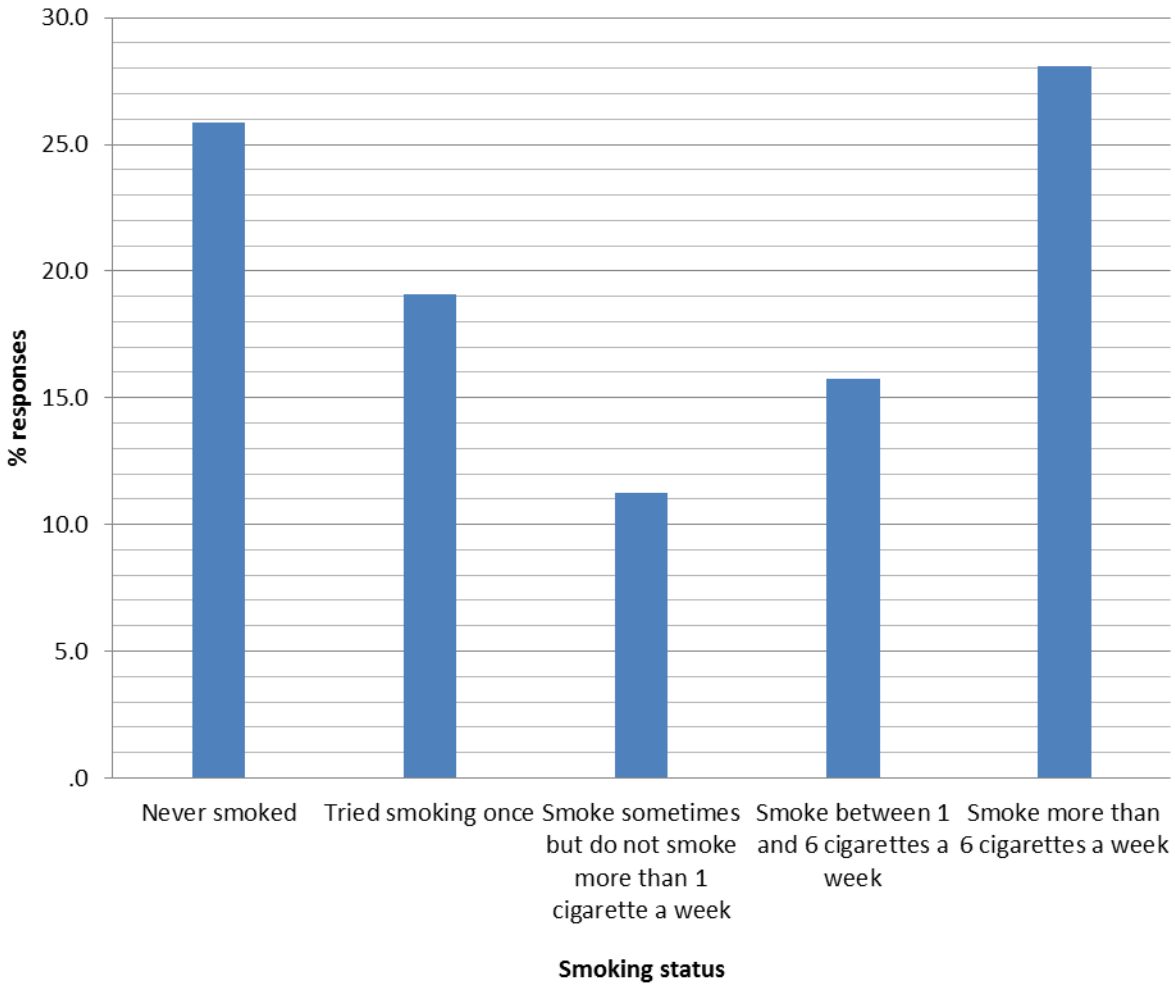

Figure 6.1 Smoking status of respondents.

From the bar chart shown in Figure 6.1 it is clear that the majority of those students who do regularly smoke have more than six cigarettes a week, although a notable percentage also reported that they only had been 1 and 6 cigarettes. On the other hand,

26% replied that they had never smoked a cigarette and nearly a fifth stated that they had tried smoking but were not now regular smokers.

Ethnicity of respondents

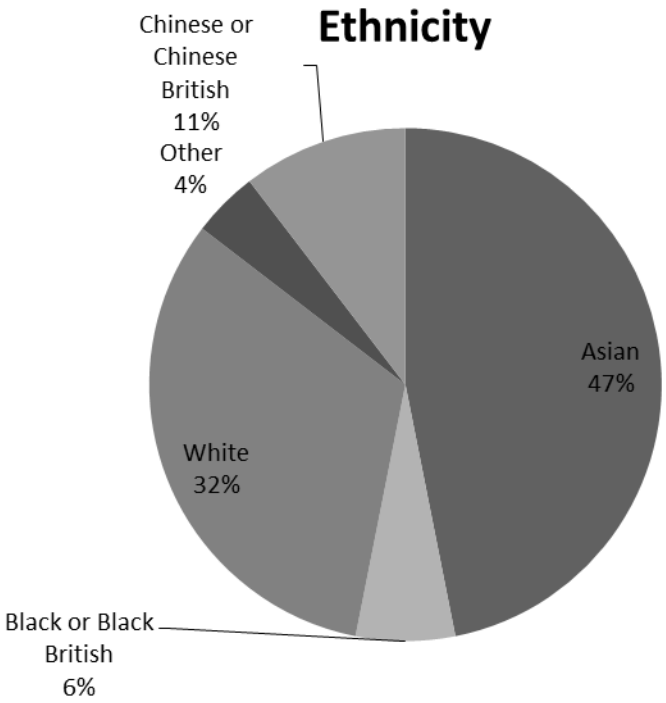

Figure 6.2. Pie chart of ethnicity of respondents.

Figure 6.2 shows the ethnicity of respondents. 45% of the respondents were Asian, while White respondents occupied the 2nd largest ethnic group. This is consistent with the ethnic diversity of the overall student body at the College. A Mann-Whitney analysis was conducted between Asian and White respondents on the number of cigarettes smoked, however, no significant effects were found.

Family member cigarette use

The majority of respondents (95%) reported having at least one sibling. 19% of respondents had one sibling, 50% had two, 25% had three a single respondent (1%) reported having 4 siblings in total.

Spearman correlations were conducted between frequency of smoking and the following variables – number of older brothers, number of older sisters, number of young brothers and number of younger sisters. None of these correlations were significant. However, there was a weak but significant correlation between frequency smoked and the total number of siblings who smoke ($r = 0.353$, $p < 0.05$). However there was no significant association between the number of siblings overall (regardless of whether or not they smoke) and personal smoking behaviour. Similarly point biserial correlation found no significant association between parental/ guardian smoking and personal smoking.

Family structure

15% of respondents reported that they lived with their father alone and 12% with their mother alone, which suggests that 27% of the respondents lived in a single parent family. The majority (56%) of the respondents lived with their father and mother in a joint family. 8% of the respondents lived with their father and stepmother and 5% with mother and stepfather. Only 4% lived with another guardian. Mann-Whitney analysis was used to determine that there was no significant difference in the number of

cigarettes smoked between those respondents from single parent or two parent families.

Qualification of parents

In order to know the respondents' parental educational level they were asked to tick the highest level of education their parent had. Parental education was classified into high school, college/university level or vocational training. 42% of the respondents' parents were educated up to university level. 32% reported high school as their parent's highest education level while 24% replied that their parents have only completed an Apprenticeships or vocational training. Mann-Whitney analysis between these three groups found no significant differences in the smoking level of the respondents as to whether respondents were allowed to smoke at home

Parental permission of smoking

Respondents were asked if they are allowed to smoke at home, from response options of either 'no', 'yes' or 'yes but only in certain places'. Of the respondents who smoke 33% replied that they are not allowed to smoke inside home while 48 % reported that they can smoke inside the home, however 7% of this group stated that they are only allowed to smoke in certain places.

Source of cigarettes

As shown in Figure 6.3 38% of respondents reported bought their cigarettes from newsagents and other shops, which was the most common source. 22% of the

respondents obtained their cigarettes from friends while a smaller numbers got their cigarettes from siblings or other people.

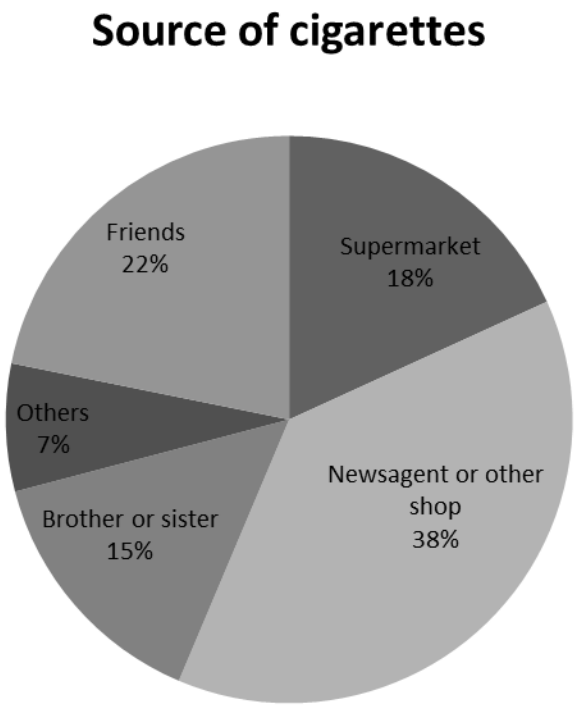

Figure 6.3. Pie chart of where respondents obtained cigarettes

Source of income

According to the collected data, 66 percent of the respondents were unemployed. A large number of respondents (64%) reported that they receive money from their father, whilst 31% reported that their mother provides them with income.

Parental approval of peers

As shown in Figure 6.4 respondents were evenly split between those whose parents actively approve of their peers and those who do not actively approve or instead

disapprove of peers. A Spearman correlation revealed no significant association between parental approval of whom the respondents socialized with outside the home and frequency of smoking.

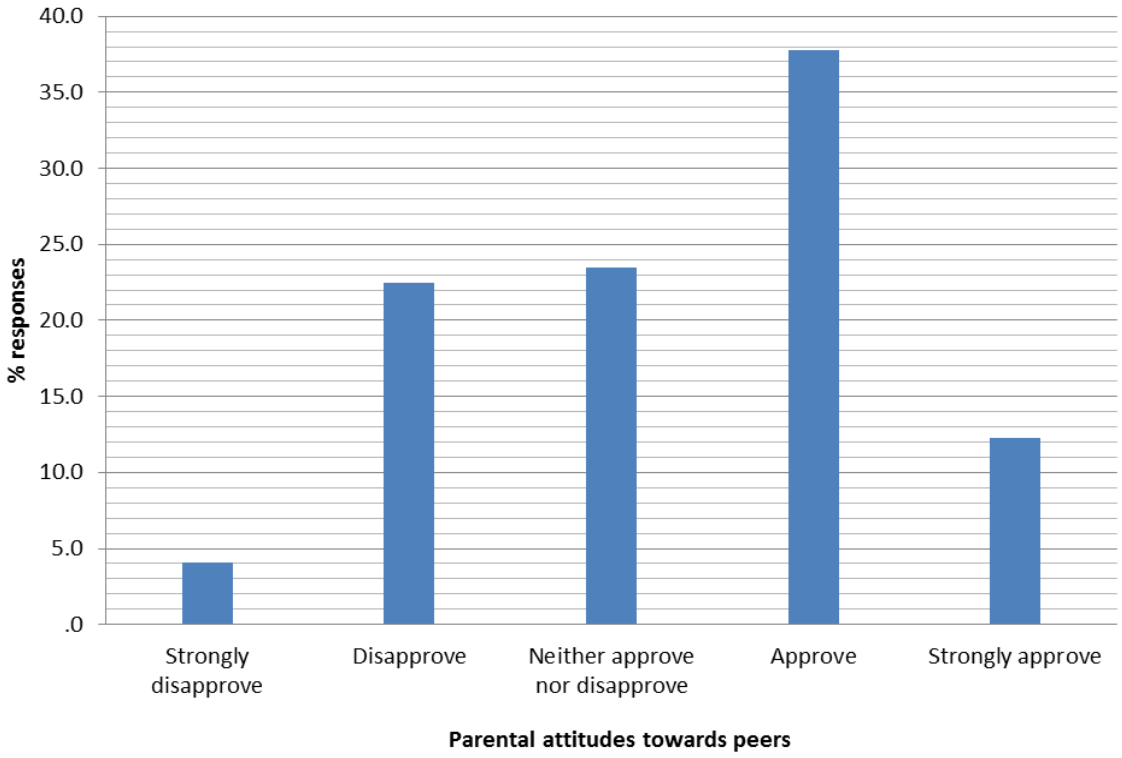

Figure 6.4 Parental approval of non-family member peers

Chapter 7 - Discussion

Summary of evidence and comparisons with existing literature

Rates of smoking

Overall, 44% of the sample reported smoking at least one cigarette a week. This is roughly equivalent to the figures discussed in Chapter 1 from the Health Survey for England and Toolkit studies, which reports rates for this age group of between approximately 30 – 40%. However, the 16% of respondents who reported only smoking between 1 and 6 cigarettes a week is of interest. It could be argued whether existing research fully takes into account those adolescents who could be classed as infrequent smokers. As noted in Chapter 1, various national surveys phrase smoking questions in terms of smoking 'nowadays' or whether the person has had a cigarette that day, neither of which could be easily answered by an adolescent who smokes in an infrequent way. Smoking is perhaps a behaviour which tends to be seen as very dichotomous, with someone being either a smoker or a non-smoker. If the movement between these two states is less defined then it may be that traditional smoking education campaigns are missing sections of their target population by focusing only on daily, regular smokers. It would of interest to further explore this issue, investigating for example, whether infrequent smokers actually perceive themselves to be smokers, and what their perceptions on the health risks are.

Age of the respondents

As discussed in previous chapters earlier research suggests that smoking rates increase with age. No significant association was found between age and the frequency of smoking (including respondents who reported smoking no cigarettes) in the current study. Similarly, there was also no significant difference in age when non-smokers were compared to smokers using a Mann-Whitney analysis. However, this may simply be an artifact of the small sample size and the fact that the age range of the respondents was narrow, at between 16 – 19 years of age.

Gender

As also discussed in previous chapters, previous research has noted a gender effect on adolescent smoking. For example, the General Household Survey 2007, found that smoking for 16-19 year old males and females was 22% and 20%, while for males and female aged 20-24 year old, the rates were 32% and 30% respectively (Robinson & Lader 2008). However, the male smoking rate in this study was 31% as compared to 24% for females.

These variances in smoking rates between the two genders may be the reflection of the current sample area. As Bradford is a diverse area where a large number of Asians live, such differences could be attributable to geographical/cultural pattern of gender differences. As discussed in previous chapters, rates of smoking amongst females in many Asian cultures is less than that of men. Higher levels of smoking amongst females were primarily found in studies with samples from Western cultural as argued by Warren et al 2006, who noted that gender differences in most western culture is minimal. The result in the current study could also be speculated to be a result of cultural variations in

parental control of children, with parents in Asian families applying stricter controls to the behaviour of their daughters as compared to their sons. As discussed in previous chapters parental control and monitoring can indeed be a preventative factor in the initiation of smoking behaviour.

Ethnicity

There was no statistically significant difference between the two largest ethnic groups in the current study, Asian and White. This is in contrast to some of the existing literature. For example Bradby and William (2006) concluded that on nearly all measures of having tried smoking, non-Asian children have higher rates of smoking experimentation and regularity than the Asian young people. Similarly, the 2001 study conducted in UK independent grammar schools in Birmingham, Oxfordshire and Northamptonshire concluded that a higher percentage of white females smoke as compared to the Asian and Black girls (Rodham and colleagues, 2005).

This may again simply be an artifact of the small sample size. However, it could be argued that the variances in smoking rates among certain ethnic groups may be the result of cultural assimilation e.g. smoking rates could be lower among less acculturated people than more acculturated. Bradford is a diverse city with a large Asian community and a long history of immigration in the area. It could be possible that the Asian participants surveyed come from families, which have become acculturated to Western beliefs and practices around smoking and that therefore some of the patterns observed with regards to ethnicity in other studies are not applicable to the current sample.

Source of cigarettes

From October 2007, in the UK it has been made illegal to sell tobacco products to anyone under the age of 18. The aim was to make it difficult for young people to obtain cigarettes and to reduce the overall prevalence of cigarette smoking (The Health Act 2007). Despite the implementation of the law the Smoking Drinking and Drug use Survey 2009 reports that 45% of young people managed to buy their cigarettes from shops.

This is consistent with the results of the current study. A third (38%) of the sample reported that they bought their cigarettes from the newsagent or another shop, although a similar number reported getting cigarettes from others (a total of 43%), with 22% obtaining them from a friend and 15% obtaining them from a sibling. The role of siblings in the provision of cigarettes could be argued to be an under-acknowledged factor and a demonstration of the importance of family structure in adolescent smoking, particularly when considered in the context of siblings as a source of social influence in the initiation of adolescent smoking.

There are several factors which may account for the apparent success in underage consumers being able to purchase cigarettes from shops. The most obvious of these is that retailers may be failing to properly check ID. However, the exact mechanism by which adolescents obtain cigarettes needs to be further explored. It would be reasonable to assume that at least some of the friends who respondents reported they obtained cigarettes from are peers of a similar age, who themselves are too young to buy cigarettes. It would be of interest to conduct research which followed the trail of cigarettes from the original source, possibly via others, to the adolescent.

Parental smoking and home environment

It is evident from existing research that parental smoking can greatly increase the chance of adolescent smoking initiation (Bricker et al 2006:, Bricker et al 2003). According to Griesbach et al (2003), children who are living with both father and mother were less likely to smoke then children living with a single parent. Similarly, various studies reported higher smoking among those adolescents whose parents smoke (e.g., Bailey et al, 1993; Conrad et al 1992; Petraitis et al,1995). However, contrary to the literature review no association between adolescent smoking and parental smoking has been observed in this study, despite the fact that 39% of the respondent's fathers, 24% of mothers and 16% of both were smokers. Similarly, results from this study show that 48% of respondents replied that they are not allowed to smoke at home as compared to the 33% who said they are allowed to smoke at home. This lack of evidence for the effect of parental smoking on personal smoking is difficult to account for. It could again be an artifact of the relatively small sample size of the study, however, given the evidence outlined in Chapters 2 and 3 it is nevertheless surprising that no effect was found. One possibility may be that it is a reflection of wider social and cultural factors around smoking which emerged in the UK in recent years. As noted in Chapter 1, there has been a reasonably marked decline in the number of adolescents who do smoke, along with an increase in knowledge of the health risks of smoking. It may be parental influence is in itself no longer sufficient to prompt smoking in adolescents and that those adolescents who do start smoking do so for other reasons. With the rapid increase in the use of social media technologies such as Facebook and Twitter, it is also possible that the behaviour and attitude of peers has become a greater social influence for this generation than family influences.

There is a lack of peer reviewed research which shows that legislation related to smoking leads to development in smoking bans inside the home. However, the government has published research which suggests that the public ban has led to increased smoking cessation within the home. According to the Office for National Statistics in England, the number of people living in smoke free homes increased from 61% in 2006 to 67% in 2007, when the government imposed bans on smoking in public places (Office for National Statistics, 2010). However, in the UK no separate home bans are imposed which may be important in reducing adolescent smoking. In the absence of a legal ban on smoking in the home, it is of course still possible for home owners to enforce their own private ban.

Sibling smoking

Less attention has been given to the effect of sibling smoking on adolescent smoking in the past, although recent research has shown the influences of siblings on adolescent tobacco use can be important (e.g. Rajan et al 2003). Various longitudinal and cross-sectional studies have reported the possible association between older siblings and adolescent smoking initiation (Avenevoli and Merikangas 2003; Vink et al 2003; Otten et al 2007). The influence of older siblings has also been found to be especially important (Avenevoli and Merikangas, 2003; Boyle et al., 2001; Maziak & Mzayek, 2000).

A significant positive correlation was found in this study between personal smoking and the total number of smoking siblings, although this was only a weak correlation ($r=0.353$). Previous research has looked at the influences of sibling smoking and argued that siblings can be a causal factor. However, it could be observed that such overall effects may be the results of some other familial factors. For example, in large families

parents may have less time to spend with each child. It may be this that has reduced parental contact, which acts as a risk factor. Similarly larger families could indirectly contribute to other risk factors, such as increased socio-economic pressures. Hence, this area needs further investigation, as also argued by Rajan.et al (2003) and Vink et al (2003). However it should be noted that the overall number of siblings and therefore family size was not itself significantly associated with personal smoking in the current study.

Limitations of the study

The main limitation to this study is that it used a cross-sectional design, which therefore prohibits conclusions around directions of causation. Whilst this was a necessity given the limitations of time and resources available, it is acknowledged that a longitudinal study would have allowed for a more thorough exploration of how family influences contribute over time to the initiation of adolescent smoking. However, given the nature of the topic it is perhaps possible to make a few speculations. It could be argued for example that the direction of causation between family structure and adolescent smoking can logically only be in one direction. This makes the lack of a relationship between parental factors and personal smoking surprising, especially in light of the existing literature. Nevertheless, there are several other limitations to the design that could account for the results.

The second main limitation is that the project used a convenience sample of relatively smaller sample size hence caution must be applied, as the findings might not be transferable to the broader community. Smaller samples have greater sampling

error/standard error than larger samples. Inferential analysis was conducted, but the relatively small sample size may have meant that there were insufficient numbers for the analysis conducted to detect significant differences between the groups that were compared. The sample may also have been biased in two ways. Firstly, it consisted of college students, who may not be representative of a typical adolescent of the same age in the city of Bradford. It may be that as college students they have a higher level of education, and potentially more likely to come from areas of lower socioeconomic deprivation. In addition, it could be argued that adolescents who choose to attend a college course demonstrate a greater degree of independence from their families than may be the case in other adolescents, in which case the influence of parents on their behaviour may not be as apparent. The second source of bias is that all participants were self-selecting and decided whether or not to take part in the study, which may have meant that only certain types of students agreed to take part. However, it should be noted that a random sampling approach was used, not a quota sampling approach in which pre-set numbers of smokers and non-smokers were recruited. The eventual ratio of smokers in the sample was found to be consistent with that reported by national surveys, suggesting that in terms of smoking behaviour the sample was reasonably representative of the wider population.

Finally, there is the issue of measurement error and bias. The survey used self-reporting, which is a common method when researching substance use behaviours. As demonstrated with regards to the discussion in Chapter 1, studies which have incorporated biomarker testing have found some inconsistencies in the self-report of tobacco use. In this instance, it is possible that the physical presence of the researcher

whilst the survey was being completed influenced the respondents to under-report their own tobacco use. Efforts were made in the information sheets and consent forms to stress the confidential nature of the survey, but participants may have been reluctant to report their smoking behavior whilst in the setting of their college. The questionnaire that was used was designed to be easily understood by an adolescent population and to be brief, to allow full advantage to be made of the limited time available to access the population. It could perhaps have been useful though to firstly pilot test the questionnaire with the population. An additional option would have been to include a range of standardized measures, although using a much longer overall survey would have created logistical problems given the available time limit.

Recommendations

The findings of this research suggest that there is a need to develop more complete models that include familial factors and to acknowledge the different contexts in which smoking occurs, and the complicated interrelationships among variables at different levels. Whilst the study reported here did not find evidence for a parental or home effect on adolescent smoking, the evidence in the literature suggests that these are potentially important factors which should continue to be investigated.

Furthermore, in addition to focusing attention on the role of general parenting factors and parental smoking behaviour, future studies should also concentrate on the antismoking socialization efforts of parents. There is a need for new parental based anti-tobacco prevention interventions as a way to curb initiation and progression of adolescent smoking. The focus of such intervention should be to highlight the negative

influence of family members on smoking and other high risk behaviours. Such programs can be delivered in a number of different formats including individual, group or self-directed programs. Self-directed programs involve parents working through materials on their own, without guidance from a facilitator. The recent emergence of online e-health interventions may increase the feasibility of and access to this type of programme. Individual and group parenting programs can be delivered in a range of settings including the home. In particular, multidimensional family based intervention and prevention should be adopted in which the awareness of specific risk and protective factors can be highlighted. In such programs, the effect of second hand smoking can also be highlighted with the help of posters showing different images based around the risks of passive smoking, as shown in the Figure 7.1.

Positive and productive parent-child communication appears to be a key factor in the literature in reducing the risk of initiating smoking. The existing literature would suggest that parents should not try to punish their children for smoking or force them to give up smoking. A more effective approach may be to develop health education campaigns, which include a greater deal of parental involvement, rather than simply consisting of information sessions delivered in class by a teacher. This approach could of course incorporate substance use and other health behaviours beyond just tobacco use.

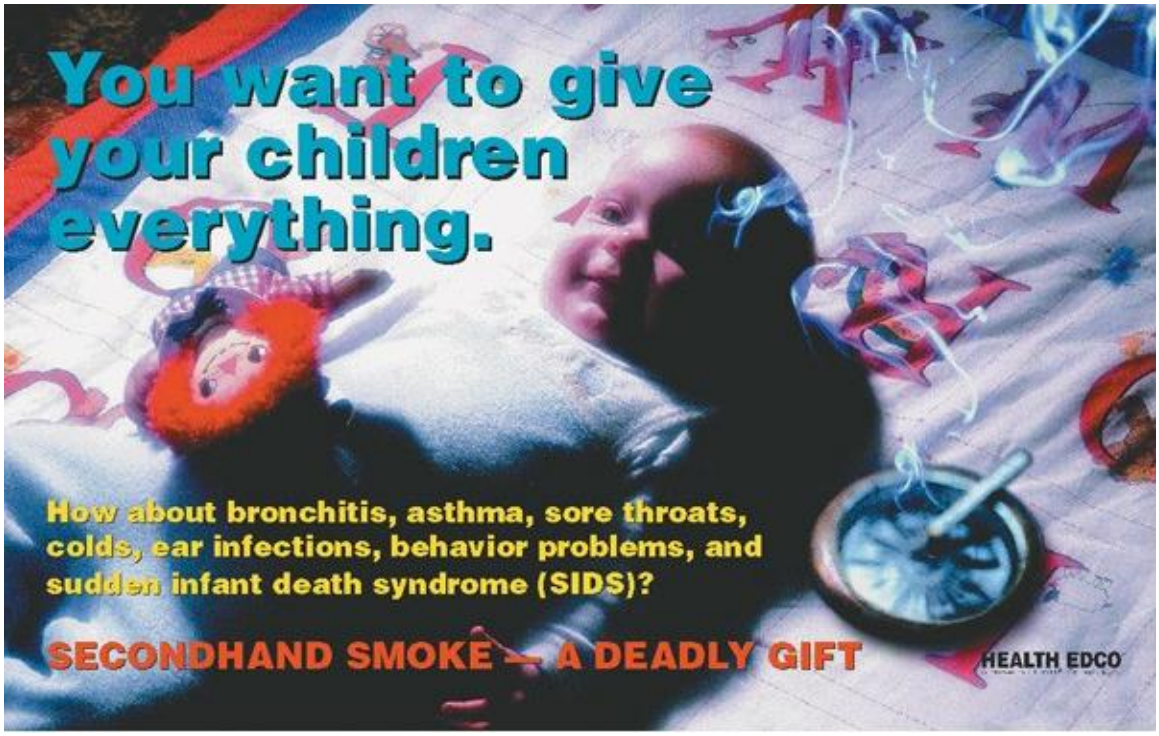

Figure 7.1 Poster showing effect of second hand smoking on children from EU based Health EDCO campaign

The literature and the results of the current study would also suggest that current legislation alone is not sufficient to prevent tobacco sales to minors. Both enforcement and community policies may improve compliance by retailers; however, the impact on underage smoking prevalence using these approaches alone may still be small. It could be suggested that the government increase their efforts to limit underage access to tobacco, which might require a combination of approaches that tackle the problem comprehensively. As commented previously one way in which to do this may be to research more thoroughly the routes though which adolescents are able to obtain cigarettes, in particular those sources other than shops or newsagents.

It could also be suggested that the minimum purchasing age for tobacco products should be increased to 21. As discussed in chapter 1, previous research shows that friends (those who had reached 18) are often a source source of obtaining cigarettes for those under age children who could not purchase tobacco products themselves. In a school settling it is possible that some pupils will be aged 18 and in a position to buy cigarettes for younger peers. If though the purchase age is raised to 21 then there would be fewer direct connections between those old enough to purchase cigarettes and those who are not. In addition to purchasing, the minimum age for selling tobacco should also be set at 21. Most of the teenagers who work in stores themselves are under age. As argued by DiFranza et al (2001) in a study concluded that illegal sales were 5.7 times more likely if the seller appeared to be under 21 years of age than older sellers.

Hence, the current study highlights the need for continued research into smoking behaviours and possible behaviour change strategies. It is evident from previous research that adolescent smoking is linked to smoking and associated beliefs and attitudes in the family. Some of the behaviour change interventions which could reduce adolescent smoking, are discussed below.

1: Family based behaviour change communication programs should be developed to reduce adolescent smoking. In such programs active parental control, home smoking rules and parent child smoking specific communication should be developed in supportive manners. In order to better understand the role of the family in adolescent smoking and to implement and develop family based interventions, further research need to be conducted. However it has to be acknowledged that the existing evidence

for these approaches is mixed. In a Cochrane systematic review Thomas et al (2007) found the evidence for the efficacy of different smoking interventions to be inconclusive, partly due to methodological limitations of the available studies, although the potential of family based approaches was highlighted.

Petrie et al (2007) conducted a systematic review on how effective parenting programs can be in preventing alcohol, tobacco and other drug use in children under the age of 18. Twenty studies on different programs regarding parent child communication, developing parental skills and other relevant interventions were included. The researcher found significant self-reported decreases in the use of tobacco in nine out of twenty studies. The researchers found those interventions, which were related to parental involvement and social-personal development, were more effective in preventing or reducing substance use (including tobacco). Despite the results of the current study therefore it would seem that the family plays a potentially important role in future smoking prevention strategies.

One potentially very effective but undoubtedly controversial step would be to ban smoking in private homes, in the same way that it is in public venues in the UK. This would reduce the exposure of children to second hand smoking and also, potentially, lessen the social influence of children witnessing their parents smoking. As discussed previously, public smoking appears to be having a major impact on public health and smoking behaviours. A ban in private dwellings may produce even greater gains. The option is not perhaps as dramatic as it may initially appear. Previous nationally based comprehensive smoke free legislation in various countries such as the USA, Australia and Ireland has increased the chance to develop home smoking bans (Royal College of

Physician, 2005). However, it is acknowledged that attempting to implement a home smoking ban in the UK would be difficult for any government to achieve. If this is not a possibility then an alternative would be to encourage home-owners to voluntarily implement smoking bans in their homes, through awareness of the dangers of second hand smoking and the influence the home environment can have on children.

2: School based intervention programs should be developed in which discussion groups about smoking are held with pupils. This setting is of course outside the remit of family and sibling influence, but the literature discussed in earlier chapters demonstrates the importance of peers in adolescent smoking, and school is often the setting where adolescents have the most peer contact. Various information regarding resistance skills, social development and normative education can be given to young people. Previous studies by Thomas and Perera (2006) highlighted the usefulness of school based intervention programs among the prevention of smoking in young people aged 5 to 18. In a review of the field, the researchers found 23 out of 94 randomized control trials effective and of high quality. Flay published two different reviews in 2008 and 2007 on the usefulness of school programs for smoking prevention. The publication in 2008 was a systematic analysis of school-based prevention programs mainly focused on long-term effects. From the findings of those three US programs that focus on social influences, Flay concluded that 25% and 30% long-term improvement may be produced. The analysis of 8 more substantial short-term effect programs specified that even further long-term effects can be attained through preventive programs, which could generally change the route of smoking toward development in a positive way. (Flay 2008).

After accepting the fact that questions had been raised about the medium term effects of programs in school, the 2007 review by Flay centered around what possible long-term effects the nationwide school based prevention programs can bring in the USA. After summarizing the reviews and conducting a meta-analysis, Flay concluded that social influences and social skills programs (which inform young people about social norms and provide various skills for resistance) can result in significant long-term effects (Flay 2007). He also added that various short-term interventions might also have long term and medium effects if proper evaluation is made (Flay 2007).

In the UK a peer involving study called, A Stop Smoking in School Trial (ASSIST) is a good example of the usefulness of school prevention programs. In order to discourage children from every day smoking peers of age 12 and 13 were selected for effectiveness of randomized control trial. (Audrey et al 2004). Proper training was provided to the nominated peer trainee by skilled health promoters. The survey was initially conducted in South Wales and then expanded to 59 schools in England. 30 schools were chosen to continue smoking education as normal, while 29 schools delivered the standard program with an added peer education component. After the delivery of programs, continuous reduction of regular smoking for 2 years was recorded. Qualitative research with the staff and students involved also suggested that the programme was well liked and received (Audrey et al 2006; Audrey et al 2008). It is possible that school interventions could be further improved by involving the family more directly in the health education process, using some of the techniques commented on above in point one. This could be achieved for example through existing Parent Teacher Association links or school engagement activities.

3: As with the family and school settings a broader level of community intervention programs should also be adopted. The focus of such programs can be to develop non-smoking behaviours among young people, as the social environment can easily influence their behaviours. The overall influence of the community and the neighborhood on adolescent smoking behaviours, as discussed previously, could be argued to be an under-research source of social influence. However, it should be noted that the results produced by community based intervention programs are mixed (Centre for Disease Control and Prevention, 1994). There have been some successful campaigns, such as the Texas tobacco prevention pilot initiative, which specifically combined media based elements and school based programs to bring about significant and positive behaviour change (Texas Tobacco Prevention Pilot Initiative, 2002). It is of interest though that this successful example of a campaign was one which incorporated a school based programme as well as the community campaign.

Müller-Riemenschneider and colleagues' (2008) systematic review broadens the recent evidence base to English and German language articles published between 2001 and 2006 and includes and compares schools-based (n=8), community-based (n=7) (any intervention conducted outside the school environment) and multi-sectorial (involving school and community approaches) (n=3) behavioural interventions to prevent smoking amongst under 19 year olds. Despite the overall effectiveness of the programs varying, most of the studies reported some positive long-term effects. Most of the community-based interventions and multi-sectorial programs reported strong evidence of long-term effectiveness; community interventions demonstrated reductions in smoking up to 10.6% and in the multi-sectorial programs, the difference in smoking rates between

intervention and control groups always favoured the intervention group. Results were inconclusive for the schools only programs. Flay's (2008) analysis, based on the findings of four programs which included mass media or community components alongside a school-based prevention program with proven effectiveness, suggests such a program could produce a long-term relative improvement of between 35% and 40%.

Implications and directions for future research

This study and the previous research discussed in previous chapters has some implications for primary prevention. In the UK, it could be argued that little attention has been paid to involvement of parents in prevention campaigns. This may be because more attention has been given to legislation. Antismoking socialization practices may be an important component of public health campaigns to discourage adolescent smoking. The results of this research support the idea that children's exposure to tobacco smoke occurs mainly in the home. Therefore, the best way of preventing secondhand smoke exposure is by reducing the prevalence of smoking among parents and young adults. Making more homes completely smoke free may be an effective means of reducing adolescent smoking rates.

The current study also highlights that in a country like the UK with decades of national tobacco control policies; surprisingly little has been done in the family sector. There is a clear need to adopt a more active role on the topic in terms of practice and research.

Conclusion

As discussed in the literature review various risk factors are associated with adolescent smoking. These factors can be social and psychological. Hence, it is clear that smoking development among adolescents is a dynamic process in which no single variable is the main underlying cause. Although familial factors do appear to be of particular importance, no significant relationship between parental smoking, family structure, parental own home smoking bans and adolescent smoking were observed in the current study.

This study has highlighted the importance of various familial factors associated with adolescent smoking. According to this research 48% of respondents reported that they are allowed to smoke at home. Encouraging parents to impose smoking bans at home may help reduce rates of adolescent smoking. From the literature review, it can be assumed that there is a lack of family related smoking studies in the UK which may be due to fact that the basis of smoking prevention has been mostly through legislative measures or health education. Families and parents are not in the core of smoking prevention work and as such those studies examining familial influences on adolescent smoking are rare..

Overall, it is evident however, from both the results of this study and existing literature that focusing on any one area of social influence is insufficient to bring about change. More holistic approaches, which aim to bring about change in not only the home but also in the school and neighborhood are needed.

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Appendix

Questionnaire

Please fill the questions by putting a tick in the box or write required information on the line

1: **Are you male or female?**

Male ☐ Female ☐

2: **What is your age?**

3: **Are you?**

☐ Asian, Asian British ☐ Mixed--please write ----------☐ Black, Black British

☐ Chinese, Chinese British ☐ White☐ Other national--please write----------

4: **Who is included in your family?**

☐ Father and mother ☐ Father and step mother☐ Mother and step father

☐Only father ☐ Only mother☐ Other guardians - who? .....

5: **What level of education do your parents or guardians have? (Mark the highest level)**

☐ High school ☐ Apprenticeship / Vocational training

☐ College or university degree

6**: Please read the statement carefully and tick one box which best describes you.**

☐ I have never smoked a cigarette (please go directly to question 9)

☐ I have tried smoking once (please go directly to question 9)

☐ I do smoke sometimes but I don't smoke more than one cigarette a week

☐ I usually smoke between one and six cigarette a week

☐ I usually smoke more than six cigarettes a week

7: **Where do you get your cigarettes from? (You can tick more than one box)**

☐ I buy them from a supermarket ☐ I buy them from newsagent or other shop

☐ I get them from my siblings ☐ My parents or guardians give them to me

☐ I buy them from other people ☐ I get them from my friends

8: **Are you allowed to smoke at home?**

☐ No ☐ Yes ☐ Yes, but only in certain places

9**: Do you earn money through employment or other paid work?**

☐ Yes ☐ No

10: **If No, please state who gives you money in your family?**

☐ Father ☐ Mother ☐ Sibling ☐ Uncle or Aunt

☐ Other please specify ----------

11: **Do any of your parents or guardians smoke?**

☐ My father smokes ☐ My mother smokes ☐ Both smoke

☐ None of them smoke ☐ other, please write ----------

12: **How many brothers and sisters do you have, who are living with you? (If you don't have any brothers or sisters living with you please go directly to question 14)**

☐ Number of older brothers ☐ Number of older sisters

☐ Number of younger brothers ☐ Number of younger sisters

13: **How many of them are smokers? (Please write the number in the boxes.)**

☐ Older brothers ☐ Number who smoke

☐ Older sisters ☐ Number who smoke

☐ Younger brothers ☐ Number who smoke

☐ Younger sisters ☐ Number who smoke

14: **How do your parents or guardians feel about the people you mainly spend your time with, outside the family? (Please tick one)**

☐ Strongly disapprove ☐ Disapprove ☐ Neither approve nor disapprove

☐ Approve ☐ Strongly approve

Information sheet

Researcher name: Manzoor Hussain Course: MPhil, University of Bradford

Title of the project: The role of family in adolescent smoking

I would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Talk to others about the study, if you wish. Ask the researcher if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part

The purpose of the research is to investigate the relationship between whether an individual smokes and the smoking attitudes and behaviours of family members. It also looks where people who do smoke get their cigarettes from and some other background information. Data is being collected in this location as it provides access to people in the 16 – 19 year age group that the study is focusing on. Bradford College is aware that the study is taking place and has given their permission for data to be collected from this location.

It is entirely up to you whether to take part or not. If you decide not to, you don't have to give a reason. If you decide to take part you are still free to withdraw without completing or returning the survey.

If you agree to take part in the research you will be asked to complete a brief written survey that you will return directly to the researcher. You will also be asked to sign a consent form to indicate that you have agreed to take part in the research, however these consent forms will be stored separately from the surveys and there will be no way of linking the two.

All the information that you provide will be kept confidential, and there are no questions on the survey that ask about your identity.

Please note that since the surveys are anonymous it will not be possible to withdraw your data once your have returned the survey to the researcher, since there will be no way of identifying which survey is yours.

If you require any further information about the research, please contact the researcher, Manzoor Hussain (m.hussain60@bradford.ac.uk). You can also direct queries to the supervisor of the project, Dr John McAlaney of the University of Bradford (j.mcalaney@bradford.ac.uk).

Consent form

Researcher name: Manzoor Hussain Course: MPhil, University of Bradford

Title of the project: The role of family in adolescent smoking

Thank you for considering completing this survey as part of the research project. I would be grateful if you would read through the following questions and indicate your response to each of them. The purpose of this is to ensure that you are fully aware of the purpose of the research and that you are willing to take part.

I have been informed about the purpose of the study and have had the opportunity to ask questions about if I wished.

Yes / No

I understand that I can withdraw from the study up until the point that I return the anonymous survey to the researcher, without giving a reason.

Yes / No

I understand that I am free to choose not to answer a question without giving a reason why

Yes / No

I have been informed that the confidentiality of the data I provide will be safeguarded.

Yes / No

I give my consent to take part in the research

Participant

Signed…….....

Name in Block letter…….....

Date …….....

Researcher

Signed…….....

Name in block letter…….....

Date…….....

Debriefing sheet

Thank you for taking the time to take part in this research!

As stated the purpose of this study is to better understand the relationship between family relationships and smoking in young adults. This is an important issue as smoking contributes to a number of health problems that people may experience in later life. Previous research suggests that there are a number of factors that influence whether or not a young adult begins smoking, including social influences and the cost of cigarettes. However it is still unclear how ethnicity and gender are involved and so one of the aims of this research project is to try to clarify this. The data that you have provided will be analysed and then written up in an MPhil dissertation.

As was explained all the data you have provided is anonymous and will be treated confidentially. If you would like more information about the study then please feel free to email me at m.hussain60@bradford.ac.uk.

If completing this survey has raised any concerns about smoking or if you would like further information then you can visit the NHS Smoke Free website at http://smokefree.nhs.uk/, or alternatively you can phone their free and confidential helpline 0800 022 4 332.